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4/19/02

**Annual Groundwater Monitoring Report (Year 2001)
South Point Plant Superfund Site Remedial Action
South Point, Ohio**

April 19, 2002

Submitted to:

Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962-2105

Submitted by:

Cox-Colvin & Associates, Inc.
1151 Bethel Road, Suite 101
Columbus, Ohio 43220
(614) 442-1970



April 19, 2002

Mr. Matt Mankowski
USEPA, Region V
HSRW-65
77 West Jackson
Chicago, Illinois 60604

**Re: Annual Groundwater Monitoring Report (Year 2001), South Point Plant Superfund Site
Remedial Action, South Point, Ohio - Electronic Data Deliverable**

Dear Mr. Mankowski:

This cover letter accompanies the electronic data deliverables (EDD) and presents a summary of the information provided on disk. As you are aware, filing of the EDD is not required under the ROD for the South Point Plant Site. However, Honeywell International did agree to provide a limited information package in the Region V format.

The data is contained in three files on the attached 3.5-inch floppy disk. The contents of the files are provided below.

File	Contents
SouthPoint20020419.OHD071650592.EPAR5SMP_v1	Comma-delimited chemistry sample file
SouthPoint20020419.OHD071650592.EPAR5CWTR_v1	Comma-delimited water level file
SouthPoint20020419.OHD071650592.EPAR5TRS_v1	Comma-delimited chemistry test/result file

If you should have any questions concerning the information presented on the attached disk, please feel free to contact me at any time.

Sincerely,
Cox-Colvin & Associates, Inc.



Craig A. Cox, CPG
Principal Scientist

Attachments

cc: T. Metcalf, Honeywell (w/o EDD)

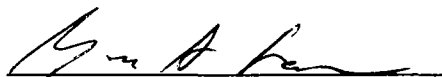
Annual Groundwater Monitoring Report (Year 2001)
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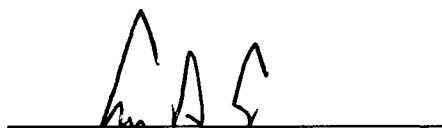
Submitted to:

Honeywell International Inc.
101 Columbia Road
Morristown, NJ 07962-2105

Submitted by:


Martin (Mort) Schmidt, CPG
Project Scientist

and


Craig A. Cox, CPG
Principal

 **Cox-Colvin**
& ASSOCIATES, INC.
ENVIRONMENTAL SERVICES

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1.0 Introduction

This document represents the annual report for the groundwater monitoring program conducted at the South Point Superfund Site (Plant) in South Point, Ohio during the year 2001. Groundwater monitoring was conducted, and this report was prepared, in accordance with the Final Design Report (FDR) for the South Point Plant Superfund Site (Parsons Engineering Science (Parsons), 2001). Groundwater quality and flow conditions are monitored semi-annually. The objective of this monitoring is to assess the flow and quality of groundwater until the remedial goals for groundwater are met.

This report presents the site setting, the field methods used for groundwater monitoring, the results of the groundwater monitoring, the NPDES permitted discharge trends, and the conclusions and recommendations for further monitoring. In addition, the groundwater quality data was provided to USEPA in an electronic form consistent with Region V's electronic data deliverable (EDD) format.

2.0 Site Setting

The Plant is located on a relatively flat part of an Ohio River terrace, within the eastern flood plain of the Ohio River (Figure 2-1). The Plant is situated on 70 to 100 feet of unconsolidated alluvium and glacial outwash sediment resting on bedrock. The glacial sediments comprise the principal aquifer of the area. Overlying the aquifer is a relatively uniform silt and fine sand unit which is generally seven to 10 feet thick.

Groundwater in the unconsolidated aquifer is present under unconfined conditions. The water table (phreatic surface) occurs at an average elevation of 514 feet msl in observation wells at the Plant. This corresponds to an average depth-to-water of 45 feet. The average saturated thickness of the aquifer is 38 feet. Pumping test results indicate that the transmissivity of the aquifer is approximately 13,500 ft²/day and the average hydraulic conductivity is 386 ft/day. Using an effective porosity of 0.2, groundwater velocities were calculated to range from 3.9 ft/day to 19 ft/day during the RI (Geraghty & Miller, 1994).

During the RI, groundwater was determined to be impacted by elevated levels of waste specific compounds (nitrate and ammonia), sulfate, iron, manganese, and other metals from on-site sources. Contaminant plumes were identified beneath the Plant and centered on the Plant's Central Well Field and Disposal Area D. Results of a borehole conductivity survey conducted during the RI indicate that, contaminant concentrations are highest, in general, near the top of the aquifer and diminish with depth. Based on the findings of the RI, a

Baseline Risk Assessment, and an Ecological Risk Assessment, preliminary remedial goals (PRGs) were developed for constituents of concern in soil and groundwater. The PRGs for groundwater chemicals of concern are presented in Table 2-1.

The following remedial action objectives address groundwater for protection of human health and the environment:

- prevent ingestion of contaminated groundwater (nitrates, ammonia, metals) under the Plant by future human receptors, and
- restore quality of the local groundwater under the Plant.

The selected remedy for groundwater, as proposed by Remedial Alternative RA-5A in USEPA's Proposed Plan (USEPA, 1997), consists of:

- institutional controls,
- containment through pumping of the existing containment system, and
- discharge to the Ohio River.

3.0 Field Methods

The field activities of the semi-annual groundwater monitoring program were conducted in April and October 2001. The locations of the wells used for containment, water-level monitoring, and groundwater quality monitoring are presented on Figure 3-1.

3.1 Well Network Status

Well MW-06 was abandoned in August 2000 to accommodate the construction of the cap at the Eastern Disposal Area and will be replaced before the April 2002 sampling event. Observation well SPOB-26 was apparently damaged between the April and October 2001 sampling events and will also be repaired or replaced before April 2002.

Production wells SPIS-23 and SPIS-24 were rehabilitated during 2001 in order to improve their performance and flow rates. To maintain capture of the contaminant plume, only one well was under repair at any time. The status of the well network is summarized in Table 3-1.

3.2 Water-level Measurements

Groundwater levels were measured to determine the direction of groundwater flow during each monitoring event. Static groundwater-level measurements were collected from the monitor well network during each episode of water-level collection. An electronic water-level indicator was used to measure the distance between the surveyed measuring point and the groundwater surface. These measurements were subtracted from surveyed elevations to determine groundwater elevations which in turn were used to generate groundwater flow maps. Table 3-2 provides the water-level measurements collected during the scheduled monitoring dates in 2001.

Wells SPIS-25, -26, and -27 appear to be yielding anomalous water levels that may be attributable to measuring point elevation errors. These locations will be resurveyed in 2002 in conjunction with the repair or replacement of MW-06 and SPOB-26.

3.3 Groundwater Sampling

Prior to initiation of purging and sampling activities, static water levels were measured in all monitor wells as described above. Groundwater samples were collected from 16 monitor and/or production wells during the year 2001. Monitoring wells were purged and sampled using disposable HDPE bailers and nylon rope. A new bailer and rope were used at each sampling point. Production wells were purged and sampled while operating. Purging and sampling was conducted in accordance with the SOPs provided in the Performance Verification Sampling Plan attached to the FDR (Parsons, 2001). Water sampling logs are provided in Appendix A.

The wells used for collection of groundwater samples are indicated on Table 3-1. Samples were submitted for laboratory analysis of ammonia, selected total metals (arsenic, beryllium, cadmium, copper, manganese, nickel), and nitrate/nitrite.

4.0 Results

This section discusses the results of the field activities and laboratory analyses obtained for the groundwater monitoring program during year 2001. The discussions will include groundwater elevations, groundwater flow, groundwater quality, the extracted volumes of water, extracted contaminant mass, and hydraulic containment.

4.1 Groundwater Flow

Groundwater level data collected during 2001 is provided in Table 3-2. The groundwater elevation data from two semi-annual monitoring events were used to generate water-table maps which indicate the direction of groundwater flow. Figures 4-1 and 4-2 indicate that the groundwater flow at the site is primarily to the southwest, toward the Ohio River and a groundwater depression formed by the containment wells SPIS-23 and SPIS-24. The hydraulic gradient of the groundwater surface was 0.0023 and 0.0018 feet/feet in April and October 2001, respectively. Based on a hydraulic conductivity of 386 ft/day and an effective porosity of 0.2, groundwater flow velocity is calculated to range from 3.5 to 4.5 ft/day, which is consistent with the values determined during the RI.

4.3 Groundwater Quality

Analytical results for the two semi-annual sampling events are provided in Table 4-1. Analytical data sheets are provided in Appendix B. Concentrations of ammonia, nitrate/nitrite, and manganese were reported above PRGs for groundwater collected during both sampling events. Details of the exceedances are discussed below.

4.3.1 Ammonia

Although ammonia is present in many of the groundwater samples analyzed, it was detected above the site-specific PRG of 30 mg/l in only two locations during 2001 (Table 4-1). Ammonia was detected at concentrations of 72 mg/l in April 2001 and 75 mg/l in October 2001 in monitor well MW-07. Ammonia was detected at a concentration of 71 mg/l in April 2001 in monitor well MW-09.

Figures 4-3 and 4-4 depict the areal distribution of ammonia in groundwater at the Plant. Identified on these figures are the inferred extent of the ammonia plumes that exceed the PRG of 30 mg/l. The plumes are confined upgradient of the two containment wells (SPIS-23 and SPIS-24). Figure 4-5 presents a comparison of ammonia concentration trends for selected wells since the monitoring program began in 2000. Ammonia concentrations increased in 2000 in the Mid-Plant Area (MW-07) and appeared to have peaked in April 2001. A similar trend was seen in Disposal Area D (SPMW-09) These increases in ammonia concentration is not well understood, but may be connected with excavation activities in these area.

4.3.2 Nitrate/Nitrite

Although nitrate/nitrite is present in most of the groundwater samples analyzed, it was detected at or above the site-specific PRG of 10 mg/l in only three wells during 2001 (Table 4-1). In April 2001, nitrate/nitrite was detected in MW-02, MW-07, and SPIS-24 at levels of 10, 17, and 7.8 mg/l, respectively. In October 2001, nitrate/nitrite was detected in MW-02, MW-07, and SPIS-24 at levels of 4.4, 0.4, and 11 mg/l, respectively.

Figures 4-3 and 4-4 depict the areal distribution of nitrate/nitrite in groundwater at the Plant. Identified on these figures is the inferred extent of the nitrate/nitrite plume that exceeds the PRG. The Mid-Plant Area plume is confined upgradient of the two containment wells (SPIS-23 and SPIS-24). The Disposal Area D plume which was present in 2000 dropped below the PRG in 2001. Figure 4-6 presents a comparison of nitrate/nitrite concentration trends for selected wells since the monitoring program began in 2000. The data indicate that, in general, nitrate/nitrite concentrations are declining.

4.3.3 Manganese

Manganese was present in all groundwater samples analyzed during year 2001. However, it was detected at or above the site-specific PRG of 1.4 mg/l in only four locations during 2001 (Table 4-1). Manganese was detected in MW-02, MW-09, and MW-10 at levels of 2.1, 14.7, and 1.6 mg/L, respectively, during the April 2001 sampling event. Manganese was detected at levels of 2.6, 3.4, and 7.4 mg/L in MW-03, MW-09, and MW-10, respectively during the October 2001 sampling event.

Figures 4-3 and 4-4 depict the areal distribution of manganese in groundwater at the Plant. Because of the sporadic distribution of manganese within the aquifer, distinct "plumes" were not inferred. Figure 4-7 presents a comparison of manganese concentration trends for selected wells since the monitoring program began in 2000. There are no discernable trends in the manganese concentrations.

4.4 Extracted Groundwater and Contaminant Mass

In-line cumulative flow meter readings indicate that a combined total of approximately 280 million gallons of groundwater were extracted by the containment well SPIS-23 and SPIS-24 during the year 2001. Individual totals for SPIS-23 and SPIS-24 were 141 million and 139 million gallons, respectively (Table 4-2).

Using the groundwater extraction information and the groundwater quality results, the mass of contaminants removed from the groundwater beneath the Plant can be calculated. The summarized calculations are provided in Table 4-3. The extracted mass of those contaminants of concern detected above PRGs during the year 2001 are as follows:

- Ammonia - 11,576 kg;
- Nitrate/Nitrite - 6,921 kg; and
- Manganese - 310 kg.

4.5 Hydraulic Containment

The Feasibility Study (FS) for the Plant (Geraghty & Miller, 1997) included a groundwater modeling simulation that demonstrated that pumping SPIS-23 and SPIS-24 would provide a capture zone capable of capturing the present day plume (Figure 4-8). This capture zone model was based on a pumping rate of 150 gpm for each extraction well, and is therefore quite conservative. The actual pumping rates of the containment wells SPIS-23 and SPIS-24 were considerably higher. SPIS-23 pumped at a rate of 196 and 342 gallons per minute (gpm) during the monitoring events in April and October 2001, respectively. SPIS-24 pumped at 237 and 293 gpm during those same respective time periods. This pumping rate has been effective in containing the groundwater plumes as demonstrated by the analytical results discussed in Section 4.3.

5.0 NPDES Discharge Trends

Groundwater from extraction wells and storm water runoff is combined and then discharged through an outfall to the Ohio River. This outfall is permitted under Ohio EPA National Pollutant Discharge Elimination System (NPDES), which details effluent limitations and monitoring requirements.

The site's NPDES permit is maintained and monitored by the Lawrence Economic Development Corporation. The 5-year permit (Number 0IN00088*DD) will require renewal by October 1, 2003. The permit requires daily monitoring of the flow rate, monthly sampling for ammonia and nitrate concentrations, and semi-annual sampling for pH and acute toxicity at Outfall 007. This outfall is equipped with an automated monitoring system. There are currently no permit limits for ammonia and nitrate. The permitted range for pH is 6.5 to 9.0 standard units. The permit limit for acute toxicity is 3.1 acute toxicity units.

A March 23, 1993 NPDES Permit Renewal Application No. OH0076392, submitted to the Ohio EPA Southeast District Office, Division of Water Pollution Control, provided a thorough characterization of the Plant effluent flow to the Ohio River, including sample results for all contaminants which were determined to be constituents of concern in the FS. The Ohio EPA conducted a review of the renewal application, including a Water-Quality Based Effluent Limits analysis. The current NPDES Permit is based on the results of that evaluation.

Discharge data for ammonia and nitrate/nitrite from January 1997 through December 2001 are provided in Table 5-1 and presented graphically on Figure 5-1. The data indicate a general decline in ammonia and nitrate concentrations over time.

6.0 Summary and Recommendations

Groundwater flow is generally to the southwest toward the Ohio River. Ammonia, nitrate/nitrite, and manganese were detected in groundwater samples from several wells at concentrations above PRGs. The primary contaminant plumes are being captured by containment wells SPIS-23 and SPIS-24. Capture-zone models and inspection of groundwater flow maps support this claim.

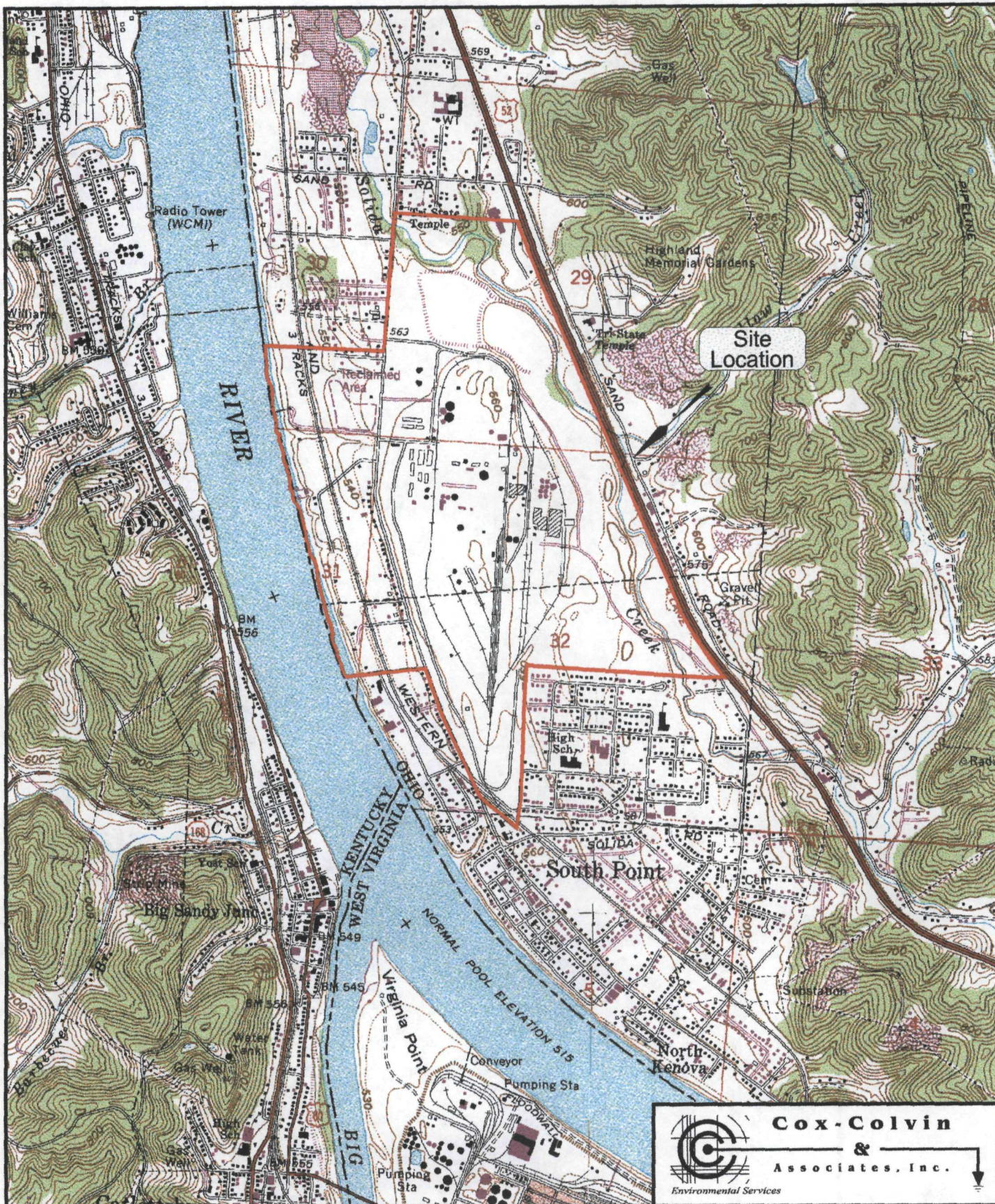
The present scope of groundwater monitoring should be continued for the year 2002. Wells SPMW-06 and SPOB-26 will be replaced or repaired, and their measuring points, together with SPIS-25, 26, and 27 will be resurveyed.

7.0 References

- Geraghty & Miller, Inc., 1997. Final South Point Feasibility Study, South Point, Ohio. Unpublished Consultants Report.
- Parsons Engineering Science, Inc., 1998. Remedial Design Workplan, South Point Superfund Site, South Point, Ohio. Unpublished Consultants Report.
- Parsons Engineering Science, Inc., 2001. Final Design Report, South Point Superfund Site, South Point, Ohio. Unpublished Consultants Report.
- United States Environmental Protection Agency, 1997. Record of Decision (ROD), Allied Signal South Point Plant Site, South Point, Ohio.

Figures

- 2-1 Site Location, South Point Plant Superfund Site, South Point, Ohio.
- 3-1 Well Network, South Point Plant Superfund Site, South Point, Ohio.
- 4-1 Groundwater Flow Map (April 2001), South Point Plant Superfund Site, South Point, Ohio.
- 4-2 Groundwater Flow Map (October 2001), South Point Plant Superfund Site, South Point, Ohio.
- 4-3 Groundwater Plume Geometry (April 2001), South Point Plant Superfund Site, South Point, Ohio.
- 4-4 Groundwater Plume Geometry (October 2001), South Point Plant Superfund Site, South Point, Ohio.
- 4-5 Ammonia Trends in Groundwater at the South Point Plant Superfund Site, South Point, Ohio.
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- 4-7 Manganese Trends in Groundwater at the South Point Plant Superfund Site, South Point, Ohio.
- 4-8 Model of Groundwater Capture Zones, South Point Plant Superfund Site, South Point, Ohio.
- 5-1 NPDES Trends at the South Point Plant Superfund Site, South Point, Ohio.



Cox-Colvin & Associates, Inc.
Environmental Services

Scale 1:24,000

0' 1000' 2000' 3000' 4000' 5000'

Source: 7.5 Minute Series Quadrangle
Cattlettsburg, Kentucky - 1968
Photorevised 1985



Figure 2-1

Site Location,
South Point Superfund Site,
South Point, Ohio

CONTAINMENT WELLS

SPIS-23
SPIS-24

WATER LEVELS AND
WATER QUALITY

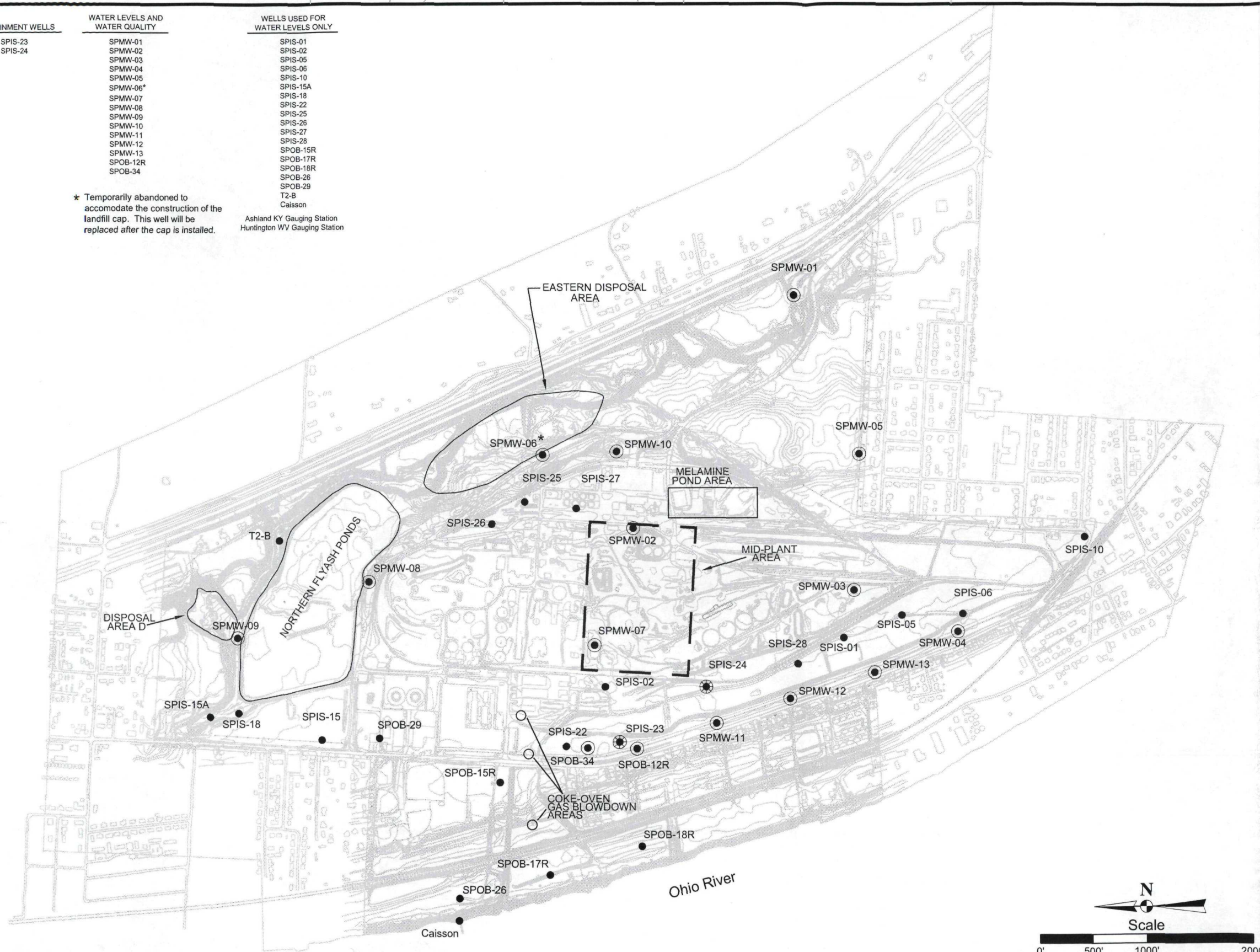
SPMW-01
SPMW-02
SPMW-03
SPMW-04
SPMW-05
SPMW-06*
SPMW-07
SPMW-08
SPMW-09
SPMW-10
SPMW-11
SPMW-12
SPMW-13
SPOB-12R
SPOB-34

WELLS USED FOR
WATER LEVELS ONLY

SPIS-01
SPIS-02
SPIS-05
SPIS-06
SPIS-10
SPIS-15A
SPIS-18
SPIS-22
SPIS-25
SPIS-26
SPIS-27
SPIS-28
SPOB-15R
SPOB-17R
SPOB-18R
SPOB-26
SPOB-29
T2-B
Caisson

* Temporarily abandoned to
accommodate the construction of the
landfill cap. This well will be
replaced after the cap is installed.

Ashland KY Gauging Station
Huntington WV Gauging Station



Legend

● Containment Wells

● Wells Used for Water Levels
and Water Quality

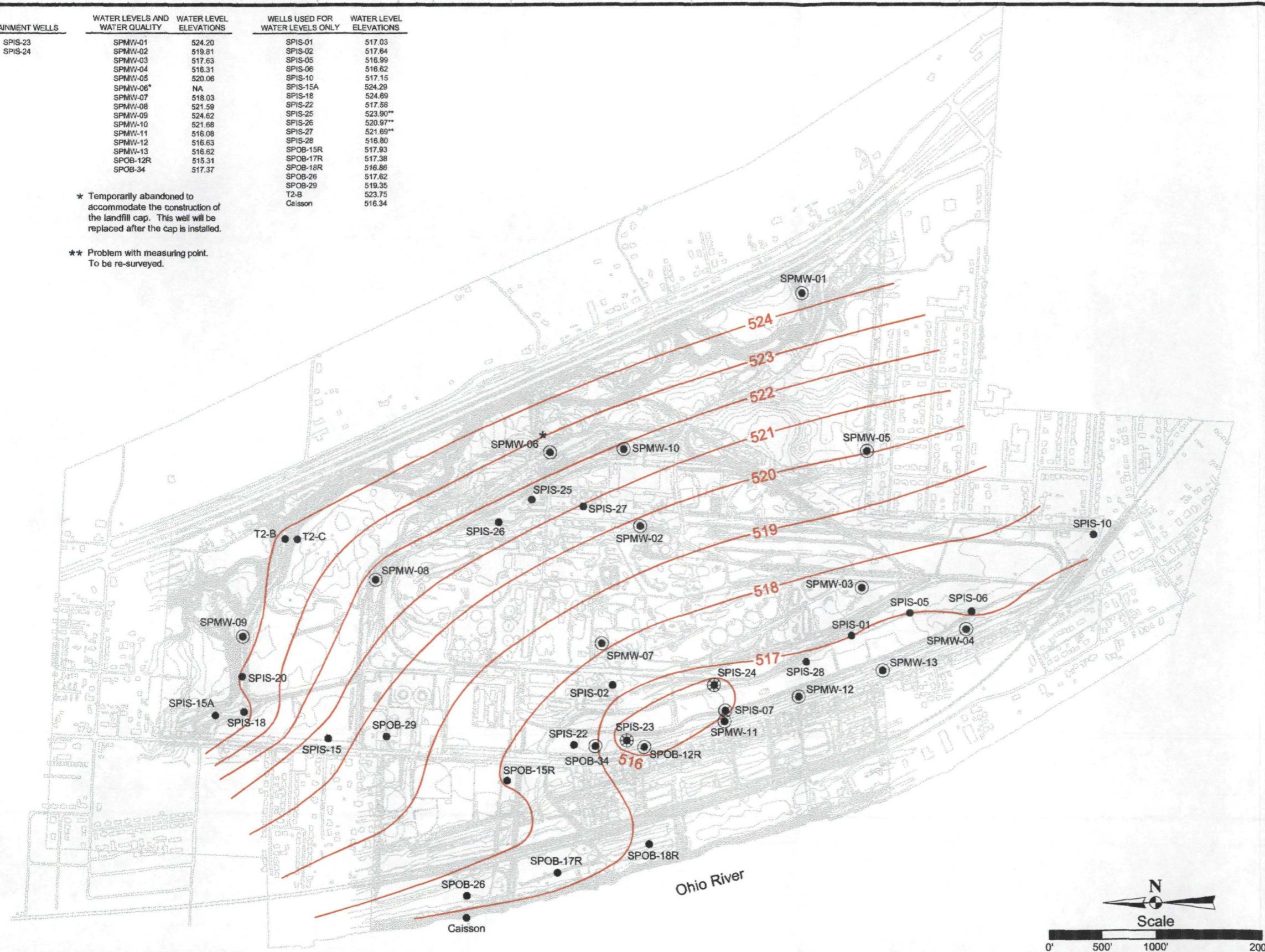
● Wells Used for Water Levels Only

Well Network

CONTAINMENT WELLS	WATER LEVELS AND WATER QUALITY	WATER LEVEL ELEVATIONS	WELLS USED FOR WATER LEVELS ONLY	WATER LEVEL ELEVATIONS
SPIS-23	SPMW-01	524.20	SPIS-01	517.03
SPIS-24	SPMW-02	519.81	SPIS-02	517.64
	SPMW-03	517.63	SPIS-05	516.99
	SPMW-04	516.31	SPIS-06	516.62
	SPMW-05	520.06	SPIS-10	517.15
	SPMW-06*	NA	SPIS-15A	524.29
	SPMW-07	518.03	SPIS-16	524.69
	SPMW-08	521.59	SPIS-22	517.58
	SPMW-09	524.62	SPIS-25	523.90**
	SPMW-10	521.68	SPIS-26	520.97**
	SPMW-11	516.08	SPIS-27	521.69**
	SPMW-12	516.63	SPIS-28	516.80
	SPMW-13	516.62	SPOB-15R	517.93
	SPOB-12R	515.31	SPOB-17R	517.38
	SPOB-34	517.37	SPOB-18R	516.86
			SPOB-26	517.62
			SPOB-29	519.35
			T2-B	523.75
			T2-C	516.34
			Caisson	

* Temporarily abandoned to accommodate the construction of the landfill cap. This well will be replaced after the cap is installed.

** Problem with measuring point. To be re-surveyed.



Legend

- Containment Wells
- Wells Used for Water Levels and Water Quality
- Wells Used for Water Levels Only

Water level data collected April 2001

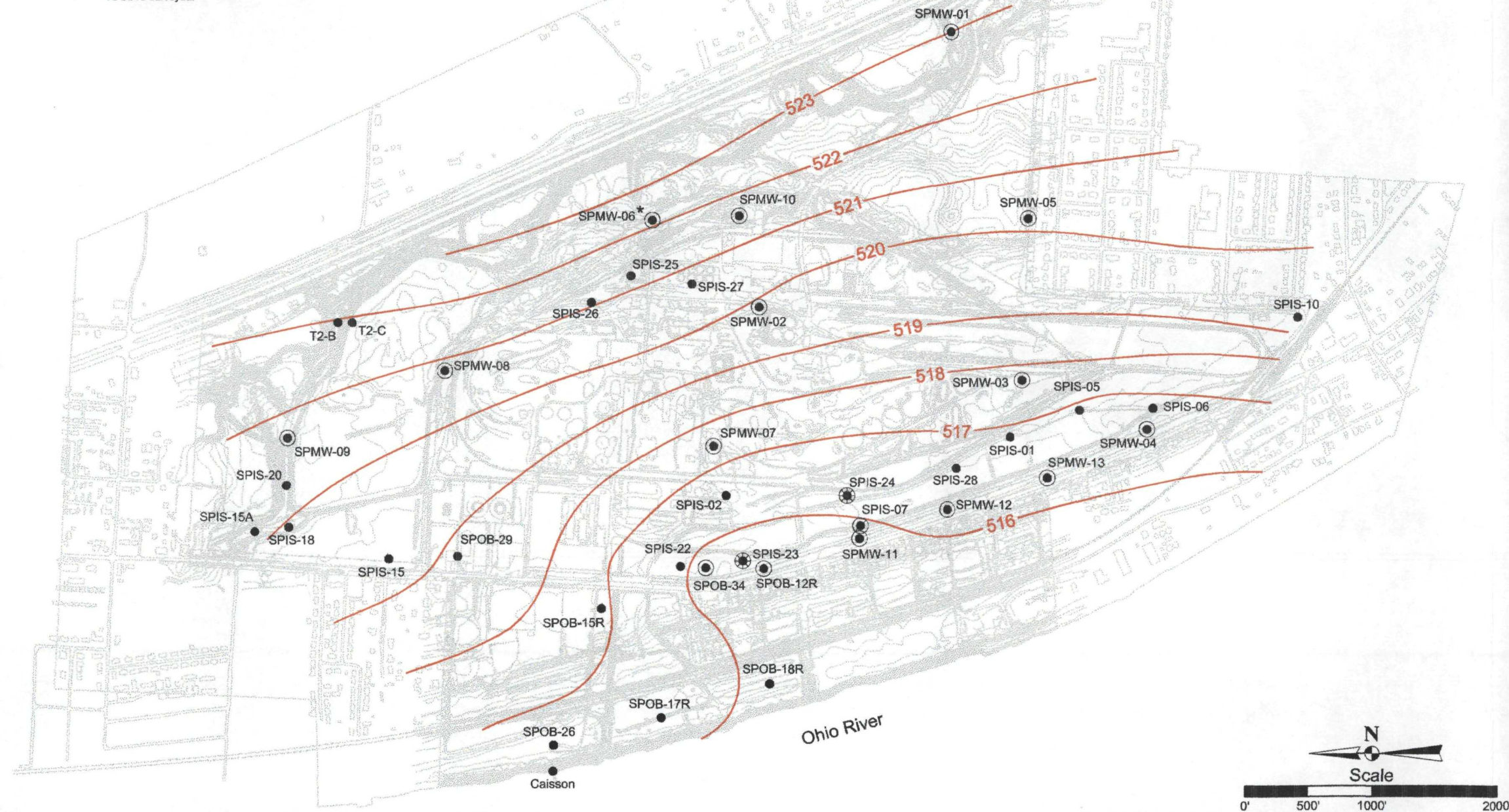
—515— Elevation of water table (feet above msl)

CONTAINMENT WELLS	WATER LEVELS AND WATER QUALITY	WATER LEVEL ELEVATIONS	WELLS USED FOR WATER LEVELS ONLY	WATER LEVEL ELEVATIONS
SPIS-23	SPMW-01	523.01	SPIS-01	518.83
SPIS-24	SPMW-02	519.72	SPIS-02	518.75
	SPMW-03	517.53	SPIS-05	516.91
	SPMW-04	516.36	SPIS-06	516.88
	SPMW-05	520.03	SPIS-10	519.62
	SPMW-06*	NA	SPIS-15A	520.92
	SPMW-07	517.53	SPIS-18	519.84
	SPMW-08	520.95	SPIS-22	516.40
	SPMW-09	520.87	SPIS-25	523.90**
	SPMW-10	521.49	SPIS-26	520.97**
	SPMW-11	515.26	SPIS-27	521.69**
	SPMW-12	516.26	SPIS-28	516.34
	SPMW-13	516.48	SPOB-15R	517.07
	SPOB-12R	515.07	SPOB-17R	516.50
	SPOB-34	515.89	SPOB-18R	515.81
			SPOB-26	Damaged
			SPOB-29	518.79
			T2-B	521.98
			Caisson	Not Measured

* Temporarily abandoned to accommodate the construction of the landfill cap. This well will be replaced after the cap is installed.

** Problem with measuring point. To be re-surveyed.

Ashland KY Gauging Station 515.93
Huntington WV Gauging Station 516.37



Legend

- Containment Wells
- Wells Used for Water Levels and Water Quality
- Wells Used for Water Levels Only

Water level data collected October 15, 2001

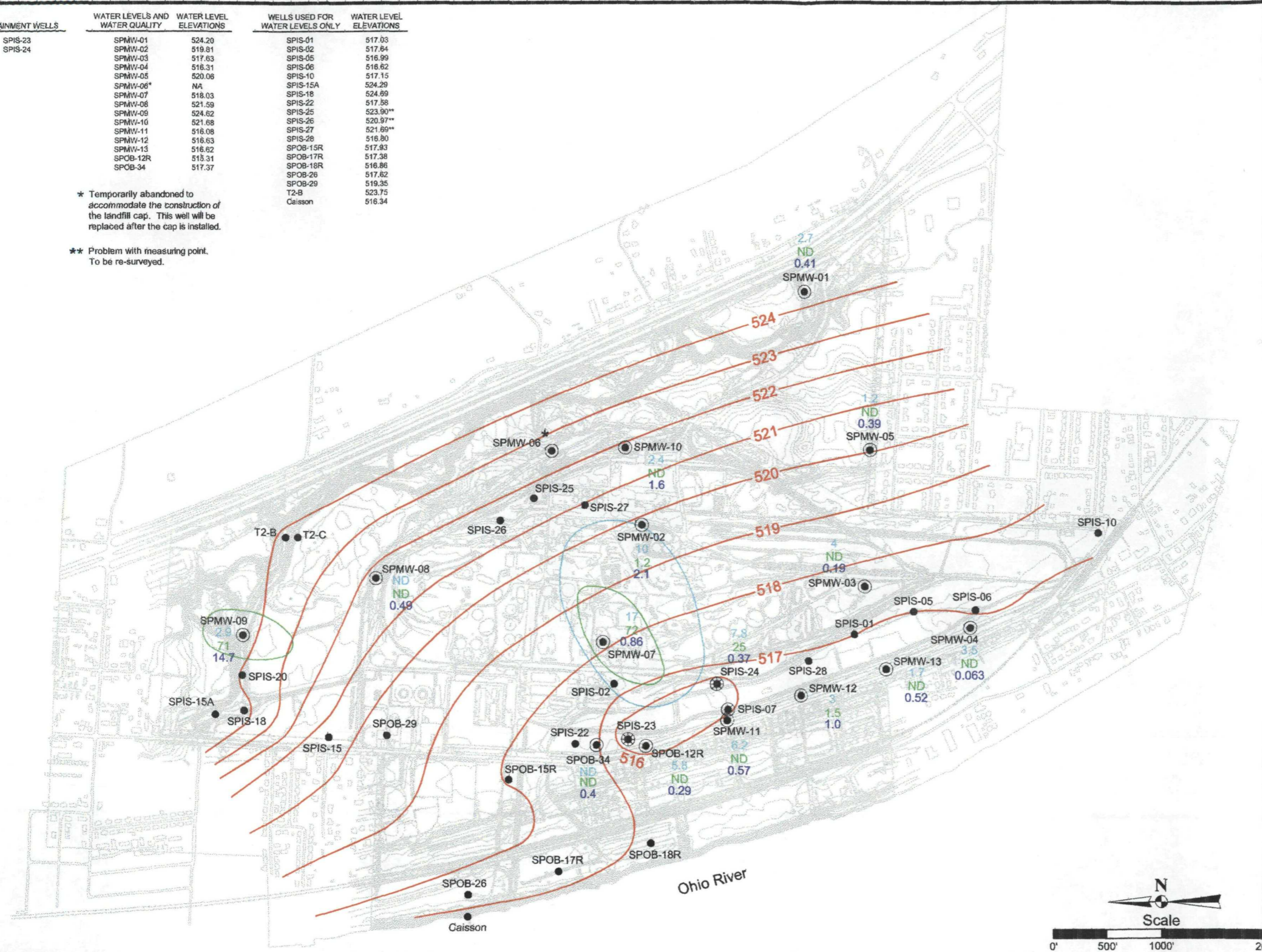
—515— Elevation of water table (feet above msl)

Groundwater Flow Map (October 2001),
South Point Plant Superfund Site,
South Point, Ohio

CONTAINMENT WELLS	WATER LEVELS AND WATER QUALITY	WATER LEVEL ELEVATIONS	WELLS USED FOR WATER LEVELS ONLY	WATER LEVEL ELEVATIONS
SPIS-23	SPMW-01	524.20	SPIS-01	517.03
SPIS-24	SPMW-02	519.81	SPIS-02	517.84
	SPMW-03	517.63	SPIS-05	516.99
	SPMW-04	516.31	SPIS-06	516.62
	SPMW-05	520.06	SPIS-10	517.15
	SPMW-06*	NA	SPIS-15A	524.29
	SPMW-07	518.03	SPIS-18	524.89
	SPMW-08	521.59	SPIS-22	517.58
	SPMW-09	524.62	SPIS-25	523.90**
	SPMW-10	521.68	SPIS-26	520.97**
	SPMW-11	516.08	SPIS-27	521.69**
	SPMW-12	516.63	SPIS-28	516.80
	SPMW-13	516.62	SPOB-15R	517.83
	SPOB-12R	515.31	SPOB-17R	517.38
	SPOB-34	517.37	SPOB-18R	516.86
			SPOB-26	517.62
			SPOB-29	519.35
			T2-B	523.75
			T2-C	516.34
			Caisson	

* Temporarily abandoned to accommodate the construction of the landfill cap. This well will be replaced after the cap is installed.

** Problem with measuring point. To be re-surveyed.



Legend

- Containment Wells
- Wells Used for Water Levels and Water Quality
- Wells Used for Water Levels Only

Water level data collected April 2001

- 515 — Elevation of water table (feet above msl)
- Nitrate Plume - 10 mg/L
- Ammonia Plume - 30 mg/L
- 3.2 Nitrate Concentrations in mg/L
- ND Ammonia Concentrations in mg/L
- 0.23 Manganese Concentrations in mg/L
- ND Not Detected

Groundwater Plume Geometry (April 2001)

Groundwater Plume Geometry (April 2001),
South Point Plant Superfund Site,
South Point, Ohio

Figure

4-3

CONTAINMENT WELLS	WATER LEVELS AND WATER QUALITY	WATER LEVEL ELEVATIONS	WELLS USED FOR WATER LEVELS ONLY	WATER LEVEL ELEVATIONS
SPIS-23	SPMW-01	523.01	SPIS-01	518.83
SPIS-24	SPMW-02	519.72	SPIS-02	518.75
	SPMW-03	517.53	SPIS-05	516.91
	SPMW-04	516.36	SPIS-06	516.58
	SPMW-05	520.03	SPIS-10	519.62
	SPMW-06*	NA	SPIS-15A	520.92
	SPMW-07	517.53	SPIS-18	519.84
	SPMW-08	520.95	SPIS-22	516.40
	SPMW-09	520.87	SPIS-25	523.90**
	SPMW-10	521.49	SPIS-26	520.97**
	SPMW-11	515.26	SPIS-27	521.69**
	SPMW-12	516.26	SPIS-28	518.34
	SPMW-13	516.48	SPOB-15R	517.07
	SPOB-12R	515.07	SPOB-17R	516.50
	SPOB-34	515.89	SPOB-18R	515.81
			SPOB-26	Damaged
			SPOB-29	518.79
			T2-B	521.98
			T2-C	Not Measured
			Ashland KY Gauging Station	515.93
			Huntington WV Gauging Station	516.37

* Temporarily abandoned to accommodate the construction of the landfill cap. This well will be replaced after the cap is installed.

** Problem with measuring point. To be re-surveyed.

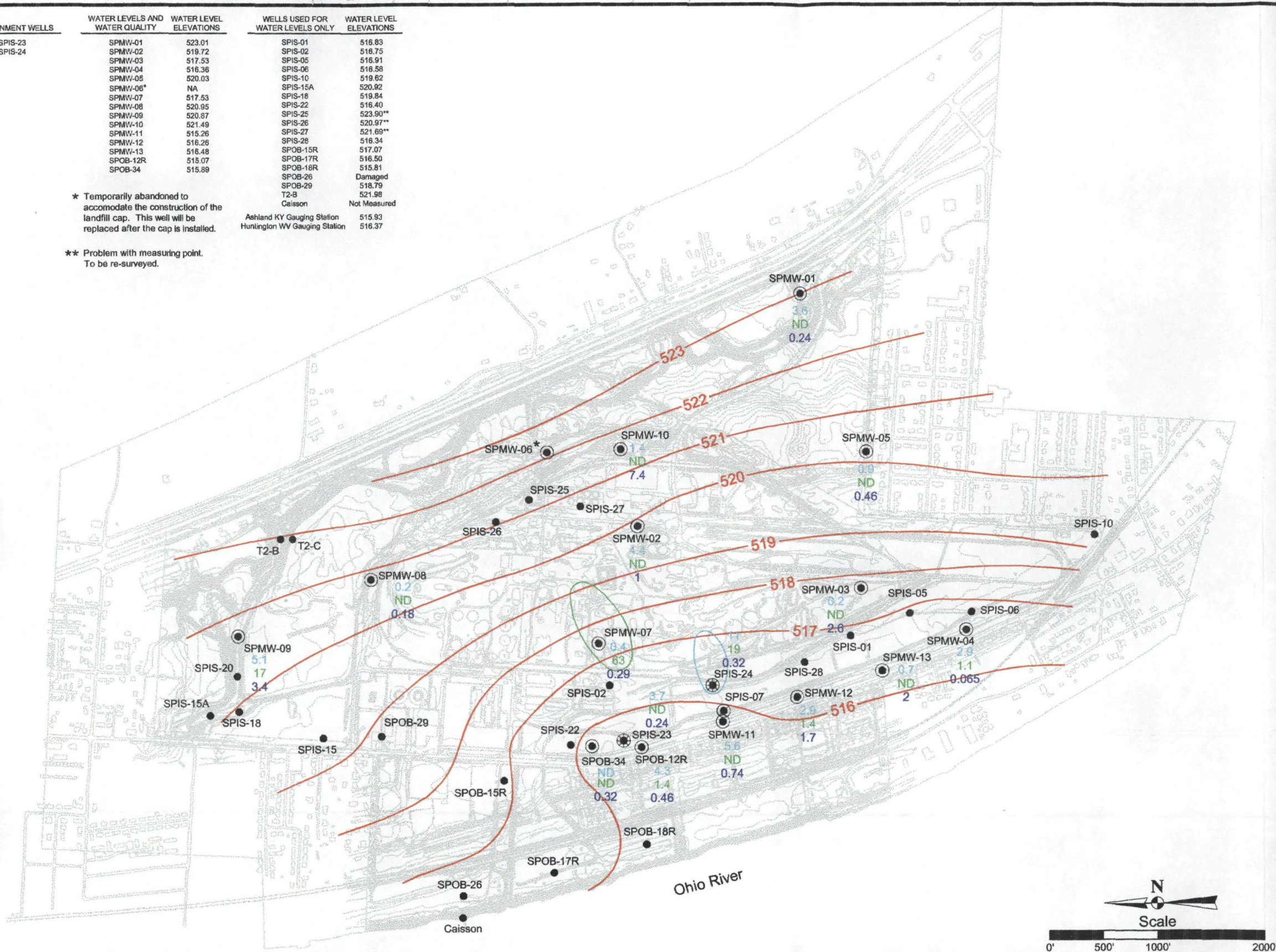
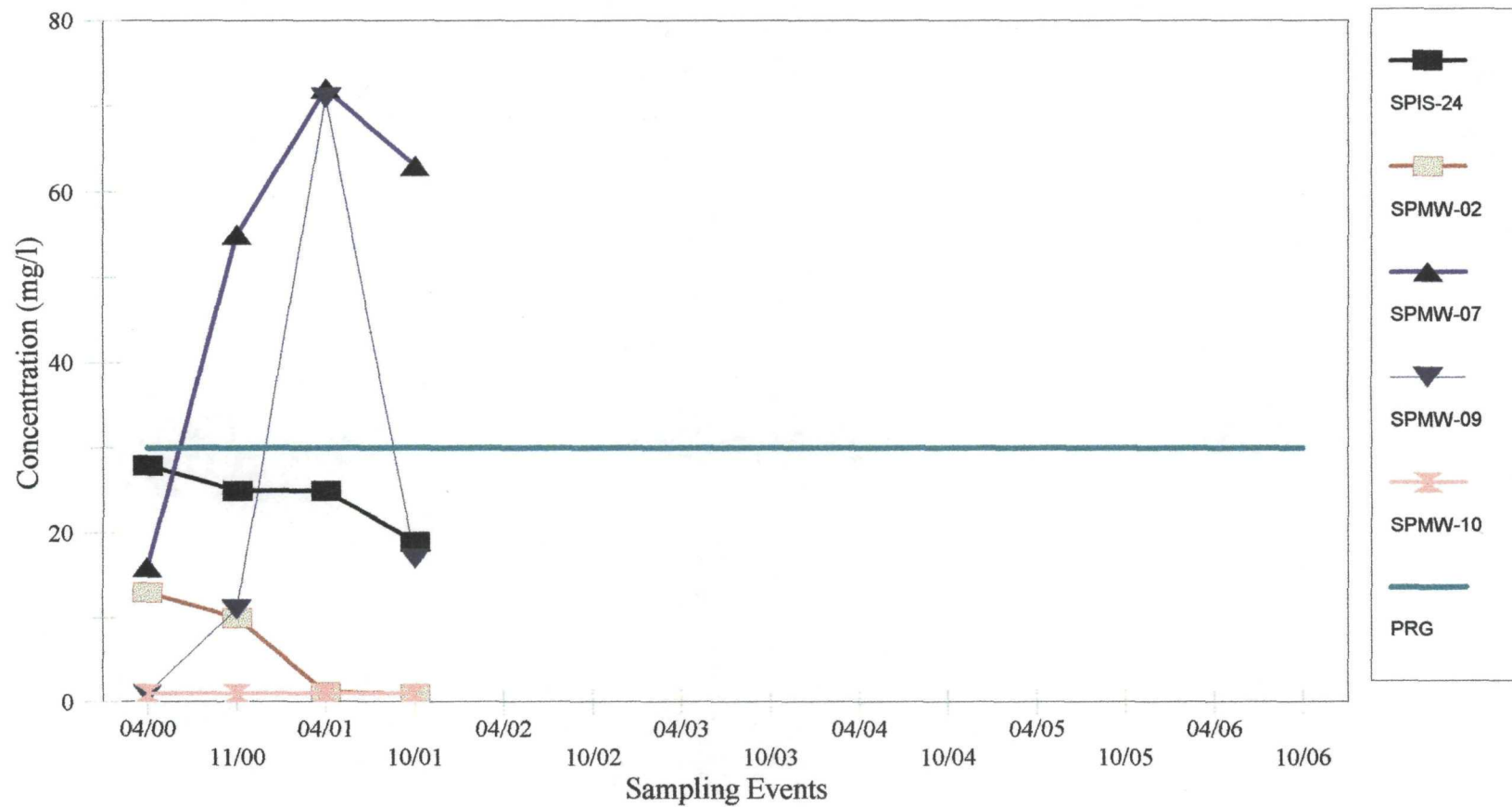


Figure 4-5. Ammonia Trends in Groundwater at the South Point Plant Superfund Site, South Point, Ohio



Cox-Colvin & Associates, Inc.

Figure 4-6. Nitrate/Nitrite Trends in Groundwater at the South Point Plant Superfund Site, South Point, Ohio

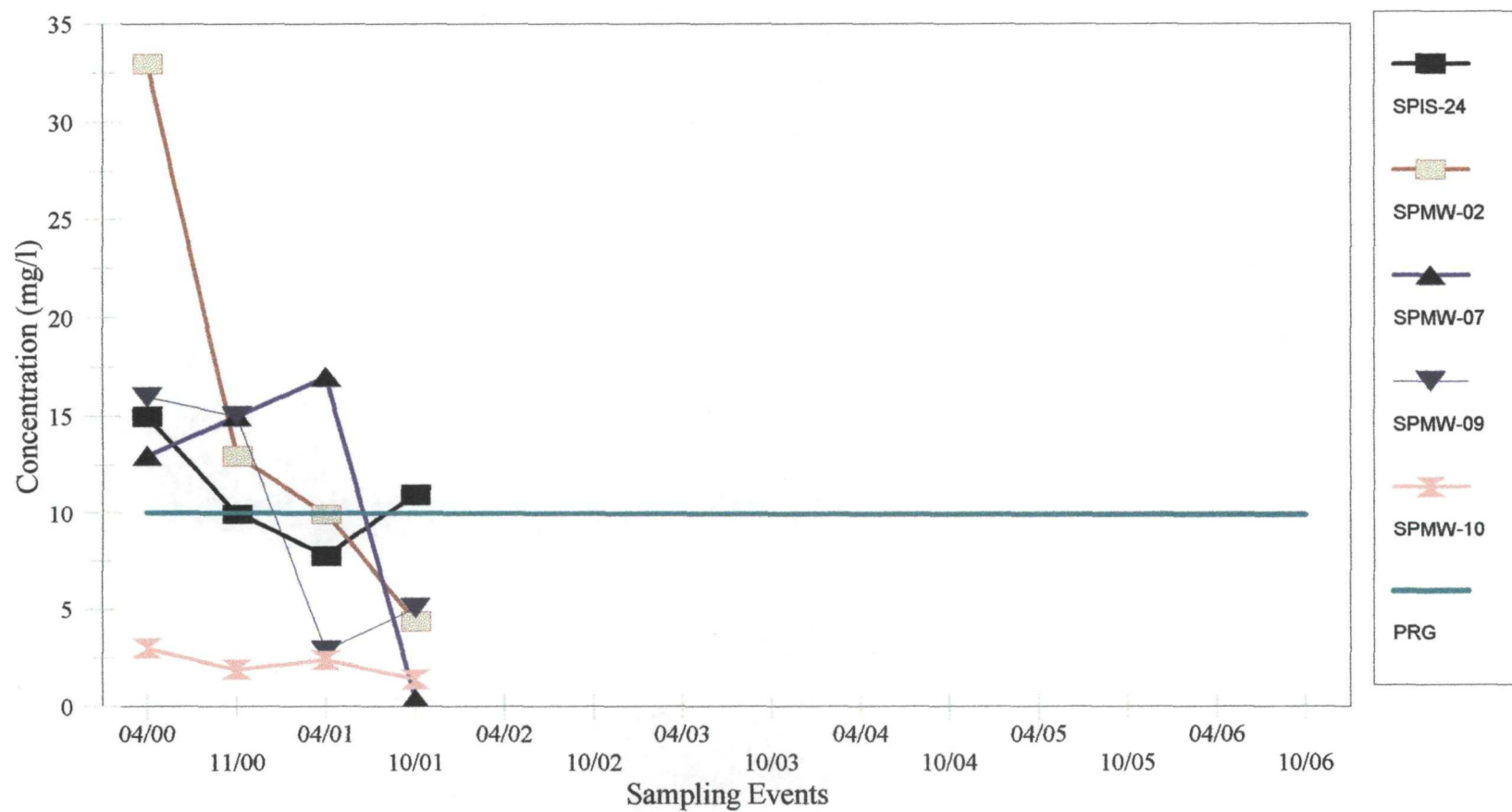
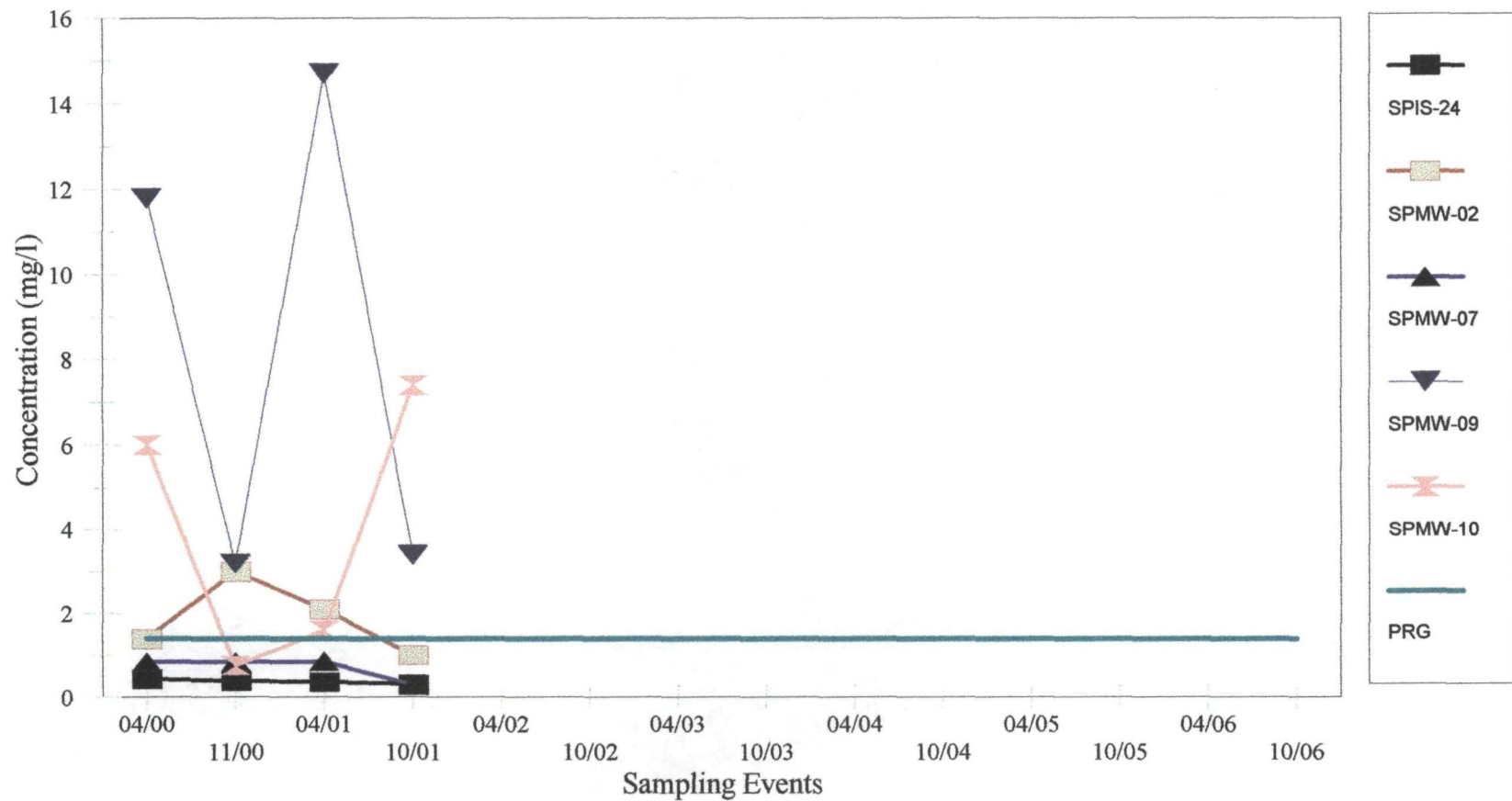


Figure 4-7. Manganese Trends in Groundwater at the South Point Plant Superfund Site, South Point, Ohio



Cox-Colvin & Associates, Inc.

[DWG NAME: model

[DATE: 12/08/2000

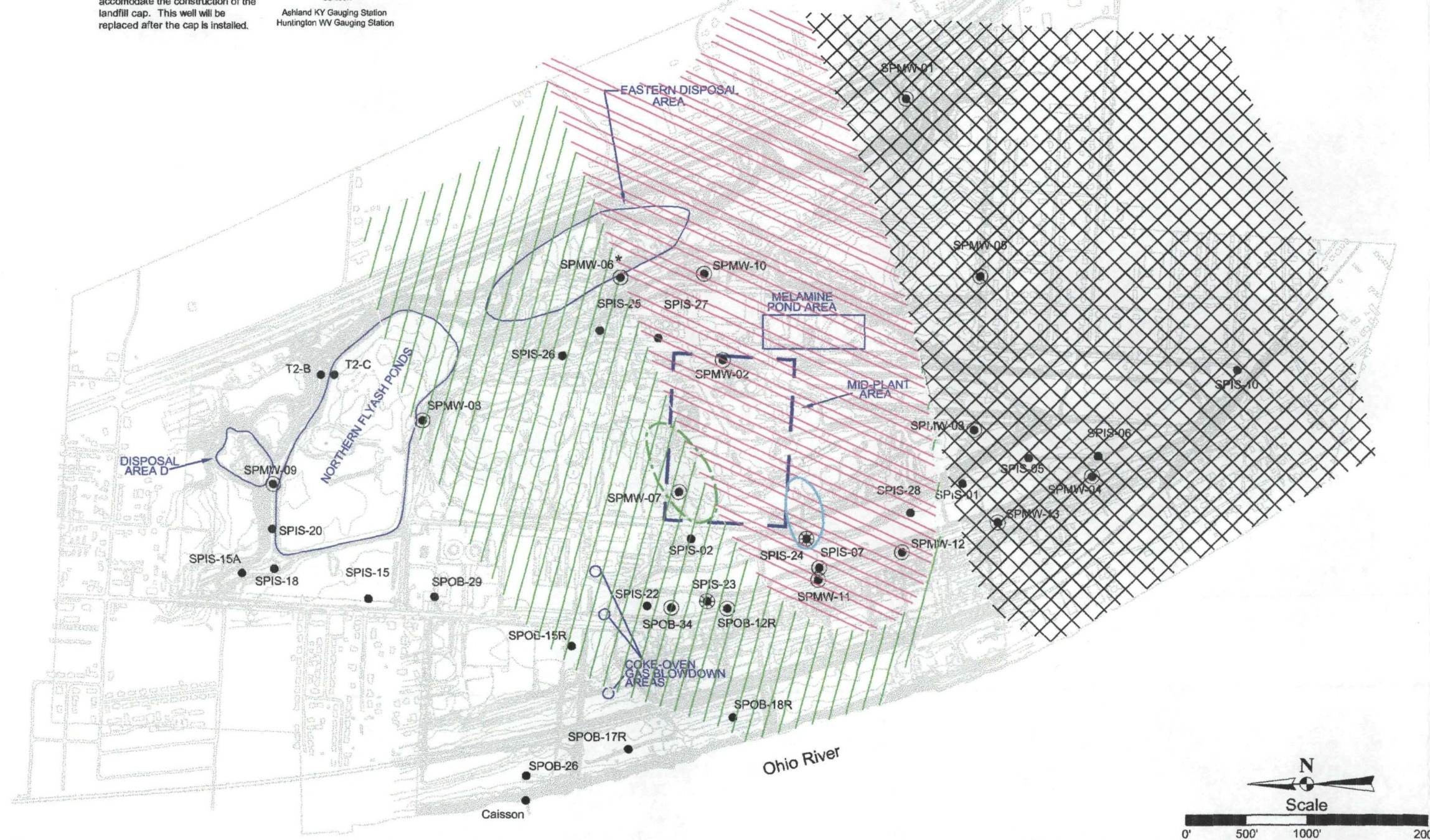
[DRAWN BY: GAL/CAC/CHECKED BY: CAC

[REVISION NO.:

CONTAINMENT WELLS	WATER LEVELS AND WATER QUALITY	WELLS USED FOR WATER LEVELS ONLY
SPIS-23 SPIS-24	SPMW-01 SPMW-02 SPMW-03 SPMW-04 SPMW-05 SPMW-06* SPMW-07 SPMW-08 SPMW-09 SPMW-10 SPMW-11 SPMW-12 SPMW-13 SPOB-12R SPOB-34	SPIS-01 SPIS-02 SPIS-05 SPIS-06 SPIS-10 SPIS-15A SPIS-18 SPIS-22 SPIS-25 SPIS-26 SPIS-27 SPIS-28 SPOB-15R SPOB-17R SPOB-18R SPOB-26 SPOB-29 T2-B Caisson Ashland KY Gauging Station Huntington WV Gauging Station

* Temporarily abandoned to
accommodate the construction of the
landfill cap. This well will be
replaced after the cap is installed.

Ashland KY Gauging Station
Huntington WV Gauging Station



Legend

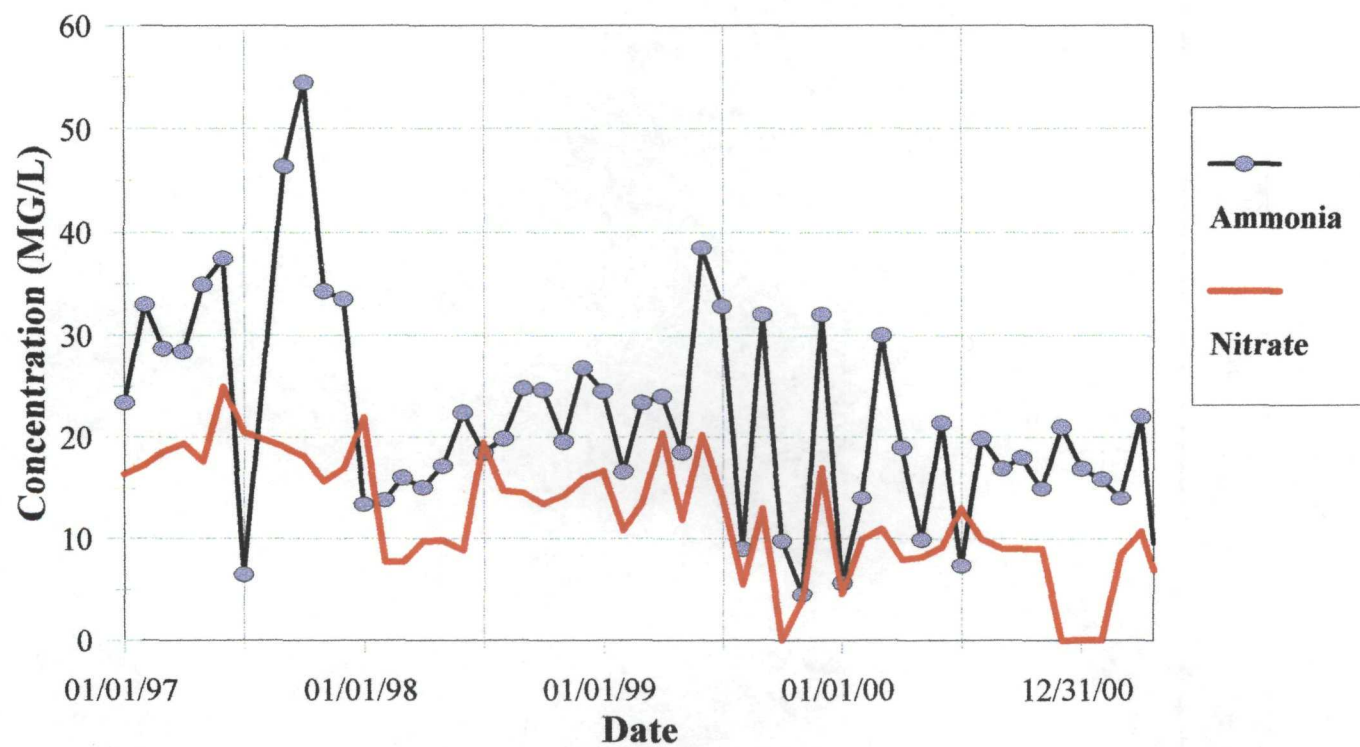
- Containment Wells
- Wells Used for Water Levels and Water Quality
- Wells Used for Water Levels Only
- Municipal Wells Capture Zone
- SPIS-24 Capture Zone
- SPIS-23 Capture Zone

From Capture Zone predicted by model for recovery and municipal wells by Geraghty & Miller in August 1996.

Ammonia and Nitrate plume geometry interpreted by Cox-Colvin & Associates, Inc. October 15, 2001.

- Nitrate Plume - 10 mg/L
- Ammonia Plume - 30 mg/L

Figure 5-1. NPDES Trends at the
South Point Plant Superfund Site, South Point, Ohio



Tables

- 2-1 Constituents of Concern and Performance Standards, South Point Plant Superfund Site, South Point, Ohio.
- 3-1 Depth to Groundwater and Calculated Groundwater Elevations, South Point Plant Superfund Site, South Point, Ohio.
- 3-2 Depth to Groundwater and Calculated Groundwater Elevations, South Point Plant Superfund Site, South Point, Ohio.
- 4-1 Analytical Results for the Year 2001 Monitoring, South Point Plant Superfund Site, South Point, Ohio.
- 4-2 Extracted Groundwater Volume during Year 2001, South Point Plant Superfund Site, South Point, Ohio.
- 4-3 Extracted Contaminant Mass during Year 2001, South Point Plant Superfund Site, South Point, Ohio.
- 5-1 NPDES Discharge Data, South Point Plant Superfund Site, South Point, Ohio.

Table 2-1 Constituents of Concern and Performance Standards, South P
Plant Superfund Site, South Point, Ohio.

Constituents of Concern	Performance Standard (mg/l)
Arsenic	0.05
Beryllium	0.004
Cadmium	0.005
Copper	3.8
Manganese	1.4
Nickel	2
Ammonia (as Nitrogen)	30
Nitrate/Nitrite	10

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Table 3-1. Well Status, South Point Plant Superfund Site, South Point, Ohio.

Name	Well Type	Water Levels	Water Quality
Cassion	River Level Measuring Point	Yes	
SPIS-01	Production	Yes	
SPIS-02	Production	Yes	
SPIS-05	Production	Yes	
SPIS-06	Production	Yes	
SPIS-10	Production	Yes	
SPIS-15	Production	Yes	
SPIS-15A	Production	Yes	
SPIS-18	Production	Yes	
SPIS-22	Production	Yes	
SPIS-23	Production		Yes
SPIS-24	Production		Yes
SPIS-25	Production	Yes	
SPIS-26	Production	Yes	
SPIS-27	Production	Yes	
SPIS-28	Production	Yes	
SPMW-01	Monitor	Yes	Yes
SPMW-02	Monitor	Yes	Yes
SPMW-03	Monitor	Yes	Yes
SPMW-04	Monitor	Yes	Yes
SPMW-05	Monitor	Yes	Yes
SPMW-06*	Monitor	Yes	Yes
SPMW-07	Monitor	Yes	Yes
SPMW-08	Monitor	Yes	Yes
SPMW-09	Monitor	Yes	Yes
SPMW-10	Monitor	Yes	Yes
SPMW-11	Monitor	Yes	Yes
SPMW-12	Monitor	Yes	Yes
SPMW-13	Monitor	Yes	Yes
SPOB-12R	Observation	Yes	Yes
SPOB-15R	Observation	Yes	
SPOB-17R	Observation	Yes	
SPOB-18R	Observation	Yes	
SPOB-26	Observation	Yes	
SPOB-29	Observation	Yes	
SPOB-34	Observation	Yes	Yes
T2-B	Piezometer	Yes	

* Temporarily abandoned. Will be replaced before April 2002 sampling event.

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Table 3-2. Depth to Groundwater and Calculated Groundwater Elevations, South Point Plant Superfund Site, South Point, Ohio.

Name	Depth-To-Water		Water Level Elevation	
	04/10/01	10/15/01	04/10/01	10/15/01
Caisson	33.95	Not Measured	516.34	Not Measured
SPIS-01	44.46	44.66	517.03	516.83
SPIS-02	43.97	44.86	517.64	516.75
SPIS-05	45.32	45.40	516.99	516.91
SPIS-06	50.53	50.57	516.62	516.58
SPIS-10	48.42	45.95	517.15	519.62
SPIS-15A	36.42	39.79	524.29	520.92
SPIS-18	35.50	40.35	524.69	519.84
SPIS-22	46.77	47.95	517.58	516.40
SPIS-25	48.47	48.40	523.90	523.97
SPIS-26	48.21	48.27	520.97	520.91
SPIS-27	50.91	50.85	521.69	521.75
SPIS-28	47.34	47.80	516.80	516.34
SPMW-01	39.70	40.89	524.20	523.01
SPMW-02	49.22	49.31	519.81	519.72
SPMW-03	45.45	45.55	517.63	517.53
SPMW-04	50.46	50.41	516.31	516.36
SPMW-05	63.60	63.63	520.06	520.03
SPMW-06	To Be Replaced		To Be Replaced	
SPMW-07	44.65	45.15	518.03	517.53
SPMW-08	43.90	44.54	521.59	520.95
SPMW-09	40.03	43.78	524.62	520.87
SPMW-10	64.12	64.31	521.68	521.49
SPMW-11	49.74	50.56	516.08	515.26
SPMW-12	49.45	49.82	516.63	516.26
SPMW-13	49.29	49.43	516.62	516.48
SPOB-12R	49.85	51.71	514.50	515.07
SPOB-15R	46.47	47.33	517.93	517.07
SPOB-17R	35.91	36.79	517.38	516.50
SPOB-18R	35.50	36.55	516.86	515.81
SPOB-26	35.67	Damaged	517.62	Damaged
SPOB-29	44.25	44.81	519.35	518.79
SPOB-34	47.71	49.19	517.37	515.89
T2-B	19.15	20.92	523.75	521.98

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Table 4-1 Analytical Results for the Year 2000 Monitoring, South Point Plant Superfund Site, South Point, Ohio.

Page 1 of 2

Location			Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network
Sample Name			SPIS-23	SPIS-24	SPIS-24A ¹	SPIS-24	SPIS-24A
Sample Date			10/15/2001	4/11/2001	4/11/2001	10/16/2001	10/16/2001
Sample Type			Industrial Supply Well	Industrial Supply Well	Industrial Supply Well	Industrial Supply Well	Industrial Supply Well
Media			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Laboratory	Conc.	PRG	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs
Lab ID	Units	MG/L	A1J180104001	A1D130171001	A1D130171002	A1J180104002	A1J180104003
Arsenic	MG/L	0.05	< .01	< .01	< .01	< .01	< .01
Beryllium	MG/L	0.004	< .003	< .003	< .003	< .003	< .003
Cadmium	MG/L	0.005	< .002	< .002	< .002	< .002	< .002
Copper	MG/L	3.8	< .025	< .025	< .025	< .025	< .025
Manganese	MG/L	1.4	.24	.37	.37	.32	.3
Nickel	MG/L	2	< .01	< .01	< .01	< .01	< .01
Ammonia as Nitrogen	MG/L	30	< 1	25	24	19	18
Nitrate/Nitrite	MG/L	10	3.7	7.8	8.5	11	11

Location			Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network
Sample Name			SPMW-01	SPMW-01	SPMW-02	SPMW-02	SPMW-03
Sample Date			4/11/2001	10/16/2001	4/11/2001	10/16/2001	4/11/2001
Sample Type			Monitor Well	Monitor Well	Monitor Well	Monitor Well	Monitor Well
Media			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Laboratory	Conc.	PRG	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs
Lab ID	Units	MG/L	A1D130171003	A1J180104004	A1D130171004	A1J180104005	A1D130171005
Arsenic	MG/L	0.05	< .01	< .01	< .01	< .01	< .01
Beryllium	MG/L	0.004	< .003	< .003	< .003	< .003	< .003
Cadmium	MG/L	0.005	< .002	< .002	< .002	< .002	< .002
Copper	MG/L	3.8	< .025	< .025	< .025	< .025	< .025
Manganese	MG/L	1.4	.41	.24	2.1	1	.19
Nickel	MG/L	2	.014	< .01	< .01	< .01	.01
Ammonia as Nitrogen	MG/L	30	< 1	< 1	1.2	< 1	< 1
Nitrate/Nitrite	MG/L	10	2.7	3.6	10	4.4	4

Location			Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network
Sample Name			SPMW-03	SPMW-04	SPMW-04	SPMW-05	SPMW-05
Sample Date			10/16/2001	4/12/2001	10/15/2001	4/11/2001	10/15/2001
Sample Type			Monitor Well	Monitor Well	Monitor Well	Monitor Well	Monitor Well
Media			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Laboratory	Conc.	PRG	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs
Lab ID	Units	MG/L	A1J180104006	A1D130171006	A1J180104007	A1D130171007	A1J180104008
Arsenic	MG/L	0.05	< .01	< .01	< .01	< .01	< .01
Beryllium	MG/L	0.004	< .003	< .003	< .003	< .003	< .003
Cadmium	MG/L	0.005	< .002	< .002	< .002	< .002	< .002
Copper	MG/L	3.8	< .025	< .025	< .025	< .025	< .025
Manganese	MG/L	1.4	2.6	.063	.065	.39	.46
Nickel	MG/L	2	.039	< .01	< .01	.014	< .01
Ammonia as Nitrogen	MG/L	30	< 1	< 1	1.1	< 1	< 1
Nitrate/Nitrite	MG/L	10	.2	3.5	2.9	1.2	.9

Location			Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network
Sample Name			SPMW-07	SPMW-07A ¹	SPMW-07	SPMW-07A ¹	SPMW-08
Sample Date			4/10/2001	4/10/2001	10/16/2001	10/16/2001	4/11/2001
Sample Type			Monitor Well	Monitor Well	Monitor Well	Monitor Well	Monitor Well
Media			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Laboratory	Conc.	PRG	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs
Lab ID	Units	MG/L	A1D130171008	A1D130171009	A1J180104009	A1J180104010	A1D130171010
Arsenic	MG/L	0.05	< .01	< .01	< .01	< .01	< .01
Beryllium	MG/L	0.004	< .003	< .003	< .003	< .003	< .003
Cadmium	MG/L	0.005	< .002	< .002	< .002	< .002	< .002
Copper	MG/L	3.8	< .025	< .025	< .025	< .025	< .025
Manganese	MG/L	1.4	.86	.86	.29	.32	.49
Nickel	MG/L	2	< .01	< .01	< .01	< .01	< .01
Ammonia as Nitrogen	MG/L	30	72	75	63	47	< 1
Nitrate/Nitrite	MG/L	10	17	17	.4	.4	< .1

1 Replicate sample.

< Not detected.

Bold Concentrations Represent values above PRG.

PRG Preliminary Remedial Goals.

Table 4-1 Analytical Results for the Year 2000 Monitoring, South Point Plant Superfund Site, South Point, Ohio.

Page 2 of 2

Location			Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network
Sample Name			SPMW-08	SPMW-09	SPMW-09	SPMW-10	SPMW-10
Sample Date			10/16/2001	4/11/2001	10/15/2001	4/11/2001	10/16/2001
Sample Type			Monitor Well	Monitor Well	Monitor Well	Monitor Well	Monitor Well
Media			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Laboratory	Conc.	PRG	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs
Lab ID	Units	MG/L	A1J180104011	A1D130171011	A1J180104012	A1D130171012	A1J180104013
Arsenic	MG/L	0.05	< .01	.02	< .01	< .01	< .01
Beryllium	MG/L	0.004	< .003	< .003	< .003	< .003	< .003
Cadmium	MG/L	0.005	< .002	< .002	< .002	< .002	.0052
Copper	MG/L	3.8	< .025	.36	.037	< .025	< .025
Manganese	MG/L	1.4	.18	14.7	3.4	1.6	7.4
Nickel	MG/L	2	< .01	.21	.02	.021	.1
Ammonia as Nitrogen	MG/L	30	< 1	71	17	< 1	< 1
Nitrate/Nitrite	MG/L	10	.2	2.9	5.1	2.4	1.4

Location			Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network
Sample Name			SPMW-11	SPMW-11	SPMW-12	SPMW-12	SPMW-13
Sample Date			4/11/2001	10/15/2001	4/12/2001	10/15/2001	4/12/2001
Sample Type			Monitor Well	Monitor Well	Monitor Well	Monitor Well	Monitor Well
Media			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Laboratory	Conc.	PRG	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs
Lab ID	Units	MG/L	A1D130171013	A1J180104014	A1D130171014	A1J180104015	A1D130171015
Arsenic	MG/L	0.05	< .01	.013	< .01	.018	< .01
Beryllium	MG/L	0.004	< .003	< .003	< .003	< .003	< .003
Cadmium	MG/L	0.005	< .002	< .002	< .002	< .002	< .002
Copper	MG/L	3.8	< .025	.025	< .025	.043	< .025
Manganese	MG/L	1.4	.57	.74	1	1.7	.52
Nickel	MG/L	2	.034	.045	.032	.053	< .01
Ammonia as Nitrogen	MG/L	30	< 1	< 1	1.5	1.4	< 1
Nitrate/Nitrite	MG/L	10	6.2	5.6	3	2.9	1.7

Location			Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network	Monitoring Network
Sample Name			SPMW-13	SPOB-12R	SPOB-12R	SPOB-34	SPOB-34
Sample Date			10/15/2001	4/12/2001	10/15/2001	4/12/2001	10/15/2001
Sample Type			Monitor Well	Monitor Well	Monitor Well	Monitor Well	Monitor Well
Media			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Laboratory	Conc.	PRG	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs	Severn Trent Labs
Lab ID	Units	MG/L	A1J180104016	A1D130171016	A1J180104017	A1D130171017	A1J180104018
Arsenic	MG/L	0.05	.018	< .01	< .01	.017	.012
Beryllium	MG/L	0.004	< .003	< .003	< .003	< .003	< .003
Cadmium	MG/L	0.005	< .002	< .002	< .002	< .002	< .002
Copper	MG/L	3.8	.044	< .025	< .025	< .025	< .025
Manganese	MG/L	1.4	2	.29	.46	.4	.32
Nickel	MG/L	2	.058	.013	.015	.011	< .01
Ammonia as Nitrogen	MG/L	30	< 1	< 1	1.4	< 1	< 1
Nitrate/Nitrite	MG/L	10	.7	5.8	4.3	< .1	< .1

1 Replicate sample.
 < Not detected.
Bold Concentrations Represent values above PRG.
 PRG Preliminary Remedial Goals.

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Table 4-2. Extracted Groundwater Volume during Year 2001, South Point Plant Superfund Site, South Point, Ohio.

Well ID	Pumping Rate (gpm)			Extracted Volume (gallons)
	April 2001	October 2001	Average	
SPIS-23	196	342	269	141,386,400
SPIS-24	237	293	265	139,284,000
Total				280,670,400

gpm = gallons per minute

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Table 4-3 Extracted Contaminant Mass during Year 2000, South Point Plant Superfund Site,
South Point, Ohio.

Well ID and Contaminant	Contaminant Concentrations (mg/l)			Extracted Groundwater Volume (gallons)	Extracted Contaminant Mass (Kg)
	April 2001	October 2001	Average		
SPIS-23					
Ammonia as Nitrogen	NA	<1	<1	141,000,000	Not Discernable
Nitrate/Nitrite	NA	3.7	3.7	141,000,000	1,975
Manganese	NA	0.24	0.24	141,000,000	128
SPIS-24					
Ammonia as Nitrogen	25	19	22	139,000,000	11,576
Nitrate/Nitrite	7.8	11	9.4	139,000,000	4,946
Manganese	0.37	0.32	0.345	139,000,000	182
TOTALS					
Ammonia as Nitrogen					11,576
Nitrate/Nitrite					6,921
Manganese					310

1 gallon = 3.78541 liters

Concentration (mg/l) * Conversion (l/gal) * Volume (gal) * Conversion (kg/mg)

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Table 5-1. NPDES Discharge Data, South Point Plant Superfund Site, South Point, Ohio.

Date	Flow Rate MGD	Nitrate MG/L	Ammonia MG/L
01/01/97	0.41	16.45	23.4
02/01/97	0.43	17.4	33
03/01/97	0.49	18.61	28.7
04/01/97	0.57	19.42	28.4
05/01/97	0.28	17.65	34.9
06/01/97	0.40	24.94	37.4
07/01/97	0.35	20.51	6.5
09/01/97	0.34	19.1	46.4
10/01/97	0.25	18.16	54.5
11/01/97	0.29	15.77	34.3
12/01/97	0.43	16.98	33.5
01/01/98	1.14	21.89	13.4
02/01/98	0.86	7.7	13.9
03/01/98	1.98	7.74	16.1
04/01/98	2.08	9.77	15.1
05/01/98	1.71	9.8	17.2
06/01/98	2.10	8.93	22.4
07/01/98	0.81	19.5	18.5
08/01/98	0.86	14.8	19.9
09/01/98	1.41	14.63	24.8
10/01/98	1.26	13.45	24.6
11/01/98	1.28	14.3	19.6
12/01/98	1.18	16.01	26.8
01/01/99	1.21	16.74	24.5
02/01/99	1.32	10.9	16.7
03/01/99		13.5	23.4
04/01/99		20.4	24
05/01/99	0.27	11.9	18.6
06/01/99	0.46	20.3	38.4
07/01/99	0.46	14.3	32.8
08/01/99	0.47	5.5	9
09/01/99	0.87	13	32
10/01/99	0.68	0.1	9.8
11/01/99	1.70	4	4.5
12/01/99	0.69	17	32
01/01/00	0.72	4.6	5.6
02/01/00	1.10	10	14
03/01/00	1.06	11	30
04/01/00	1.41	8	19
05/01/00	1.24	8.2	9.94
06/01/00	1.26	9.2	21.4
07/01/00	2.06	13	7.3
08/01/00	1.13	10	19.9
09/01/00	1.16	9	17
10/01/00	1.36	9	18
11/01/00	1.14	9	15
12/01/00	1.02	0	21
01/01/01	1.27	0.1	17
02/01/01	1.33	0.1	16
03/01/01	1.17	8.5	14
04/01/01	0.74	10.7	22
05/01/01	1.07	4.4	1.3
06/01/01	1.23	7.4	13
07/01/01	1.24	8.5	13
08/01/01	1.35	6.4	11
09/01/01	1.16	8.5	14
10/01/01	1.29	8.4	15
11/01/01	1.27	8.7	13
12/01/01	1.25	9.1	14

MGD Million gallons per day
 MG/L Milligram per liter

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Appendix A

Well Construction Logs

Appendix A



Cox-Colvin

&
Associates, Inc.

Environmental Services

Water Sampling Log

PROJECT/NO. South Point RPA
SITE LOCATION South Point, U410
WELL NO. SP15-24 REPLICATE NO. ✓SP15-24A DATE 4/11/21
WEATHER Partly Cloudy 80 Time BEGAN 16:20 Time COMPLETED 16:45 (KV) 17:30
purge one hour

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE - MP ELEVATION -
TOTAL SOUNDED DEPTH OF WELL BELOW MP - WATER-LEVEL ELEVATION -
DEPTH TO WATER BELOW MP - DIAMETER OF CASING 3" NA
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL - CALCULATED - Actual -
GALLONS PER FOOT 0.16 NA Sampling Pump Intake Setting
GALLONS IN WELL - (FEET BELOW LAND SURFACE) -
EVACUATION METHOD disposable boiler

SAMPLING DATA/FIELD PARAMETERS

Color clear ODOR - APPEARANCE clear TEMPERATURE - °F/°C
OTHER (SPECIFIC ION: OVA; HNU; ETC.) -
CONDUCTIVITY - UMHS/CM - PH -
SAMPLING METHOD AND MATERIAL disposable boiler, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>App H Metals</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Nitrate/Nitrite</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS Producing well - Purged 1/2 hour before sampling
SAMPLING PERSONNEL M. Schmidt, K. Velez

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.05	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.25	3-1/2" = 0.50	6" = 1.47



Water Sampling Log

PROJECT/NO. South Point R DRA
SITE LOCATION South Point, 0410
WELL NO. SPHW-02 REPLICATE NO. — DATE 4-11-01
WEATHER hazy, 80°F Time BEGAN 15:20 Time COMPLETED 15:50

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE — MP ELEVATION —
TOTAL SOUNDED DEPTH OF WELL BELOW MP 84.5 WATER-LEVEL ELEVATION —
DEPTH TO WATER BELOW MP 49.2 DIAMETER OF CASING 2 in
WATER COLUMN IN WELL 35.3 GALLONS EVACUATED PRIOR TO SAMPLING
GALLONS PER FOOT 0.6 CALCULATED 17.7 Actual 18
GALLONS IN WELL — Sampling Pump Intake Setting
EVACUATION METHOD disposable boiler (FEET BELOW LAND SURFACE) —

SAMPLING DATA/FIELD PARAMETERS

Color clear ODOR — APPEARANCE clear TEMPERATURE 15.9 °F ☒
OTHER (SPECIFIC ION: OVA: HNU: ETC.) —
CONDUCTIVITY - UMHS/CM 116.5 PH 6.47
SAMPLING METHOD AND MATERIAL disposable boiler, ground water

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>As H, Pb, Cu, Ni, Mn, Fe</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Al, Mn, Fe, Ni, Mn, Fe</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS
SAMPLING PERSONNEL by Schmidt, R Velez

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.05 2" = 0.16 3" = 0.37 4" = 0.65
1-1/2" = 0.09 2-1/2" = 0.26 3-1/2" = 0.50 6" = 1.47

	PH	Temp °C	COND uS
	11.16	22.1	977
	8.76	17.3	1101
	6.39	17.0	1115
	6.46	16.7	1131
	6.47	15.9	1165



Cox-Colvin

&
Associates, Inc.

Environmental Services

Water Sampling
Log

PROJECT/NO. South Point RPA
 SITE LOCATION South Point, 0410
 WELL NO. SPW-03 REPLICATE NO. — DATE 4-11
 WEATHER cloudy, 80°F Time BEGAN 9:50 Time COMPLETED 10:20

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
 TOTAL SOUNDED DEPTH OF WELL BELOW MP 78.0 WATER-LEVEL ELEVATION _____
 DEPTH TO WATER BELOW MP 45.5 DIAMETER OF CASING 2 in
 GALLONS EVACUATED PRIOR TO SAMPLING _____
 WATER COLUMN IN WELL 32.5 CALCULATED 16.3 Actual 17
 GALLONS PER FOOT 0.6 Sampling Pump Intake Setting _____
 GALLONS IN WELL _____ (FEET BELOW LAND SURFACE) _____
 EVACUATION METHOD disposable bailer

SAMPLING DATA/FIELD PARAMETERS

Color 167 ODOR — APPEARANCE clear TEMPERATURE 14.7 °F/58
 OTHER (SPECIFIC ION: OVA; HNU; ETC.) —
 CONDUCTIVITY - UMHO/CM 823 PH 6.61
 SAMPLING METHOD AND MATERIAL disposable bailer, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>App H, P, K, L</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Al, Mn, Fe, Cu, Pb, Cd</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS _____
 SAMPLING PERSONNEL By Schmidt, R. Velez

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.05 2" = 0.16 3" = 0.37 4" = 0.65
 1-1/2" = 0.09 2-1/2" = 0.26 3-1/2" = 0.50 6" = 1.47

	PH	Cond μS	Temp °C
	5.78	858	14.8
	6.21	879	14.5
	6.32	827	14.8
	6.61	836	14.7
	6.61	823	14.7

Water Sampling Log

PROJECT/NO. South Point RPA
SITE LOCATION South Point, U410
WELL NO. SPHW-04 REPLICATE NO. - DATE 4-12-01
WEATHER cloudy, 80°F Time BEGAN 8:05 Time COMPLETED 8:40

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
TOTAL SOUNDED DEPTH OF WELL BELOW MP 81.2 WATER-LEVEL ELEVATION _____
DEPTH TO WATER BELOW MP 50.5 DIAMETER OF CASING 2 in
GALLONS EVACUATED PRIOR TO SAMPLING _____
WATER COLUMN IN WELL 30.7 CALCULATED 15.4 Actual 16
GALLONS PER FOOT 0.66 Sampling Pump Intake Setting _____
GALLONS IN WELL _____ (FEET BELOW LAND SURFACE) _____
EVACUATION METHOD disposable boiler

SAMPLING DATA/FIELD PARAMETERS

Color clear ODOR _____ APPEARANCE clear TEMPERATURE 15.1 °F (C)
OTHER (SPECIFIC ION: OVA: HNU: ETC.) _____
CONDUCTIVITY - UMHO/CM 656 PH 6.59
SAMPLING METHOD AND MATERIAL disposable boiler, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Asbestos (Total)</u>	<u>1 L poly</u>	<u>HNO₃</u>
<u>Asbestos (Inorganic)</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS _____
SAMPLING PERSONNEL by Schmidt, R. V. et al

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.05 2" = 0.15 3" = 0.37 4" = 0.65
1-1/2" = 0.09 2-1/2" = 0.25 3-1/2" = 0.50 6" = 1.47

Depth	Temp °C	Cond (µS)
7.05	18.5	464
6.15	15.5	605
6.61	15.2	652
6.55	15.1	642
6.59	15.1	656

Water Sampling Log

PROJECT/NO. South Point RPA
SITE LOCATION South Point, U410
WELL NO. SP4W-05 REPLICATE NO. - DATE 4-11-01
WEATHER 42-44, 80°F Time BEGAN 11:00 Time COMPLETED 11:20

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE - MP ELEVATION -
TOTAL SOUNDED DEPTH OF WELL BELOW MP 87.0 WATER-LEVEL ELEVATION -
DEPTH TO WATER BELOW MP 63.6 DIAMETER OF CASING 2 in
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 23.4 CALCULATED 11.7 Actual 12
GALLONS PER FOOT 0.66 Sampling Pump Intake Setting
GALLONS IN WELL - (FEET BELOW LAND SURFACE) -
EVACUATION METHOD disposable boiler

SAMPLING DATA/FIELD PARAMETERS

Color brn-yel. ODOR - APPEARANCE sl. cloudy TEMPERATURE 14.7 °F (C)
OTHER (SPECIFIC ION: OVA: HNU: ETC.) -
CONDUCTIVITY - UMHS/CM 694 PH 7.58
SAMPLING METHOD AND MATERIAL disposable boiler, ground water

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>App H, B, K, L</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Nitrate, Nitrite</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS -
SAMPLING PERSONNEL M. Schmidt, K. Vahle

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.06 2" = 0.16 3" = 0.37 4" = 0.65
1-1/2" = 0.09 2-1/2" = 0.26 3-1/2" = 0.50 6" = 1.47

PH	Temp °C	Cond us
6.76	15.0	709
7.36	14.2	695
7.51	14.3	781 717
7.55	14.4	734
7.58	14.7	694

Water Sampling Log

PROJECT/NO. SOUTH POINT RDRA
 SITE LOCATION SOUTH POINT, OHIO
 WELL NO. MW-07 REPLICATE NO. — DATE 4-27-01
 WEATHER Time BEGAN 12:25 Time COMPLETED 1:00

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE (ft) MP ELEVATION (ft)
 TOTAL SOUNDED DEPTH OF WELL BELOW MP (ft) 72.0 WATER-LEVEL ELEVATION (ft)
 DEPTH TO WATER BELOW MP (ft) 44.6 DIAMETER OF CASING (in) 2
 WATER COLUMN IN WELL (ft) 27.4 GALLONS EVACUATED PRIOR TO SAMPLING
 GALLONS PER FOOT 0.16 CALCULATED 13.7 Actual
 GALLONS IN WELL Sampling Pump Intake Setting
 (FEET BELOW LAND SURFACE)
 EVACUATION METHOD disposable bailer

SAMPLING DATA/FIELD PARAMETERS

Color ODOR APPEARANCE TEMPERATURE — °F/°C
 OTHER (SPECIFIC ION: OVA; HNU; ETC.) —
 CONDUCTIVITY - UMHO/CM PH
 SAMPLING METHOD AND MATERIAL Disposable bailer, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia Nitrate/Nitrite</u>	<u>1 L Poly</u>	<u>Sulfuric Acid</u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>
<u> </u>	<u> </u>	<u> </u>

REMARKS Confirms run of April 01 samples
 SAMPLING PERSONNEL K Valek

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RPA
SITE LOCATION South Point, UGA
WELL NO. SPW-07 REPLICATE NO. SPW-07A DATE 4-10-01
WEATHER DD cloudy Time BEGAN 17:17 Time COMPLETED 18:40
1.75 in rain

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
TOTAL SOUNDED DEPTH OF WELL BELOW MP 72.0 WATER-LEVEL ELEVATION _____
DEPTH TO WATER BELOW MP 44.7 DIAMETER OF CASING 2 in
WATER COLUMN IN WELL 27.3 GALLONS EVACUATED PRIOR TO SAMPLING
GALLONS PER FOOT 0.16 CALCULATED 13.1 Actual 14
GALLONS IN WELL 1.02 Sampling Pump Intake Setting
EVACUATION METHOD disposable boiler (FEET BELOW LAND SURFACE) _____

SAMPLING DATA/FIELD PARAMETERS

Color Clear ODOOR None APPEARANCE clear TEMPERATURE 16.0 °F/°C
OTHER (SPECIFIC ION; OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHO/CM 1590 PH 7.17
SAMPLING METHOD AND MATERIAL disposable boiler, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>App H Metals</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Nitrate/Nitrite</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS Cr16-ndian 1413/1413 us/27.40c/7.00/7.00 pH/4.05/4.00 pH
SAMPLING PERSONNEL by Sclmold, K. Koteck

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.05	2" = 0.15	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.25	3-1/2" = 0.50	6" = 1.47

PH	Temp °C	Cond us
6.23	19.7	1230
6.32	16.2	1260
7.09	12.1	1440
7.08	16.7	1510
2.17	14.0	1590



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Water Sampling Log

PROJECT/NO. South Point R DRA
SITE LOCATION South Point, 0410
WELL NO. SPMW-08 REPLICATE NO. — DATE 4/11/01
WEATHER Sunny 80 Time BEGAN 14:50 Time COMPLETED 15:15

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE — MP ELEVATION —
TOTAL SOUNDED DEPTH OF WELL BELOW MP 67.0 WATER-LEVEL ELEVATION —
DEPTH TO WATER BELOW MP 43.90 DIAMETER OF CASING 2 in
WATER COLUMN IN WELL 23.1 GALLONS EVACUATED PRIOR TO SAMPLING
GALLONS PER FOOT 0.66 CALCULATED 11.5 Actual 12
GALLONS IN WELL — Sampling Pump Intake Setting
EVACUATION METHOD disposable bailer (FEET BELOW LAND SURFACE) —

SAMPLING DATA/FIELD PARAMETERS

Color translucent ODOR Nil APPEARANCE slightly turb TEMPERATURE 15.2 °C
OTHER (SPECIFIC ION: OVA: HNU: ETC.) —
CONDUCTIVITY - UMHO/CM 1481 PH 6.75
SAMPLING METHOD AND MATERIAL disposable bailer, ground water

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Aspartate / Nitrate</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Nitrate / Nitrite</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS
SAMPLING PERSONNEL by Schmidt, R. V. 1/1/01

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.05 2" = 0.16 3" = 0.37 4" = 0.65
1-1/2" = 0.09 2-1/2" = 0.25 3-1/2" = 0.50 6" = 1.47

PH	COND	TEMP °C
6.73	1061	19.2
6.72	1434	16.0
6.76	1481	15.7
6.73	1446	15.4
6.75	1481	15.2

Water Sampling Log

PROJECT/NO. South Point RPA
SITE LOCATION South Point, Ohio
WELL NO. MW-09 REPLICATE NO. - DATE 4-11-01
WEATHER 80, cloudy Time BEGAN 8:30 Time COMPLETED 9:00

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
TOTAL SOUNDED DEPTH OF WELL BELOW MP 62.00 WATER-LEVEL ELEVATION _____
DEPTH TO WATER BELOW MP 40.03 DIAMETER OF CASING 2 in
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 12.0 CALCULATED 4 Actual 5
GALLONS PER FOOT 0.6 Sampling Pump Intake Setting _____
GALLONS IN WELL _____ (FEET BELOW LAND SURFACE) _____
EVACUATION METHOD disposable bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR 600 ODOR - APPEARANCE cloudy TEMPERATURE 13.8 °F/C
OTHER (SPECIFIC ION: OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHO/CM 1780 PH 4.73
SAMPLING METHOD AND MATERIAL disposable bailer, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>App H, Metals</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Nitrate/Nitrite</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS cal. 6/14/13 45 7.01/7.00 pH 10.0/10.0 pH
SAMPLING PERSONNEL M Schmidt, K Velez

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.05	2" = 0.15	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Temp °C	pH	Cond uS
14.0	4.24	1870
13.8	4.24	1900
13.8	4.56	1860
13.8	4.54	1810
13.8	4.73	1780



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Environmental Services

Water Sampling Log

PROJECT/NO. SOUTH POINT RORA

SITE LOCATION SOUTH POINT, OHIO

WELL NO. MW-09

REPLICATE NO. —

DATE 4-27-01

WEATHER —

Time BEGAN 11:30

Time COMPLETED 12:00

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) TOP PVC

HEIGHT OF MP ABOVE/BELOW LAND SURFACE (ft) —

MP ELEVATION (ft) —

TOTAL SOUNDED DEPTH OF WELL BELOW MP (ft) 62.0

WATER-LEVEL ELEVATION (ft) —

DEPTH TO WATER BELOW MP (ft) 40.0

DIAMETER OF CASING (in) 2

WATER COLUMN IN WELL (ft) 22.0

GALLONS EVACUATED PRIOR TO SAMPLING

CALCULATED 11 Actual —

GALLONS PER FOOT 0.16

Sampling Pump Intake Setting

GALLONS IN WELL —

(FEET BELOW LAND SURFACE) —

EVACUATION METHOD disposable bailer

SAMPLING DATA/FIELD PARAMETERS

Color — ODOR — APPEARANCE — TEMPERATURE — °F/°C

OTHER (SPECIFIC ION: OVA; HNU; ETC.) —

CONDUCTIVITY - UMHO/CM — PH —

SAMPLING METHOD AND MATERIAL Disposable bailer, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED

SAMPLE CONTAINER

PRESERVATIVE

Ammonia Nitrate/Nitrite

1 L Poly

Sulfuric Acid

REMARKS Confirming run of April 01 sampler

SAMPLING PERSONNEL K Valek

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RPA
SITE LOCATION South Point, Ohio
WELL NO. SPMN-10 REPLICATE NO. M5/M5D DATE 4-11-01
WEATHER hazy, 80°F Time BEGAN 13:30 Time COMPLETED 14:00

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
TOTAL SOUNDED DEPTH OF WELL BELOW MP 92 ~~feet~~ WATER-LEVEL ELEVATION _____
DEPTH TO WATER BELOW MP 64.1 DIAMETER OF CASING 2 in
WATER COLUMN IN WELL 28 GALLONS EVACUATED PRIOR TO SAMPLING
GALLONS PER FOOT 0.6 CALCULATED 14 Actual 15
GALLONS IN WELL _____ Sampling Pump Intake Setting
EVACUATION METHOD disposable boiler (FEET BELOW LAND SURFACE) _____

SAMPLING DATA/FIELD PARAMETERS

Color 19 ODOR none APPEARANCE clear TEMPERATURE 15.4 °F/C
OTHER (SPECIFIC ION: OVA: HNU: ETC.) _____
CONDUCTIVITY - UMHO/CM 584 PH 6.73
SAMPLING METHOD AND MATERIAL disposable boiler, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Asbestos (Total)</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Asbestos (Inhalable)</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS _____
SAMPLING PERSONNEL By Schmidt, K. V. & L.

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.05 2" = 0.16 3" = 0.37 4" = 0.65
1-1/2" = 0.09 2-1/2" = 0.26 3-1/2" = 0.50 6" = 1.47

Cooler, K57

PH	Cond (us)	Temp °C
6.73	239	17.7
6.76	507	16.3
6.63	668	16.6
6.77	687	15.8
6.73	584	15.4

Water Sampling Log

PROJECT/NO. South Point RPA
 SITE LOCATION South Point, Ohio
 WELL NO. SPMW-11 REPLICATE NO. - DATE 4/11/00
 WEATHER Cloudy 80 Time BEGAN 16:35 Time COMPLETED 17:00

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
 TOTAL SOUNDED DEPTH OF WELL BELOW MP 92.0 WATER-LEVEL ELEVATION _____
 DEPTH TO WATER BELOW MP 49.74 DIAMETER OF CASING 2 in
 GALLONS EVACUATED PRIOR TO SAMPLING _____
 WATER COLUMN IN WELL 42.3 CALCULATED 21.2 Actual 21
 GALLONS PER FOOT 0.66 Sampling Pump Intake Setting _____
 GALLONS IN WELL _____ (FEET BELOW LAND SURFACE) _____
 EVACUATION METHOD disposable bailer

SAMPLING DATA/FIELD PARAMETERS

Color muddy brown ODOR NA APPEARANCE Drum turbid TEMPERATURE 15.4 °F/°C
 OTHER (SPECIFIC ION: OVA: HNU: ETC.) _____
 CONDUCTIVITY - UMHS/CM 587 PH 5.73
 SAMPLING METHOD AND MATERIAL disposable bailer, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Asbestos</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Nitrate/Nitrite</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS _____
 SAMPLING PERSONNEL A. Schmidt, R. Vahle

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.05 2" = 0.16 3" = 0.37 4" = 0.65
 1-1/2" = 0.09 2-1/2" = 0.26 3-1/2" = 0.50 6" = 1.47

Depth	Cond	Temp °C
6.60	470	17.9
5.62	538	15.7
5.59	601	15.5
5.62	618	15.7
5.73	587	15.4

Water Sampling Log

PROJECT/NO. South Point RPA
 SITE LOCATION South Point, 0410
 WELL NO. MW-12 REPLICATE NO. - DATE 4-12-01
 WEATHER 80°F, cloudy Time BEGAN 9:50 Time COMPLETED 10:20

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
 TOTAL SOUNDED DEPTH OF WELL BELOW MP 92.0 WATER-LEVEL ELEVATION _____
 DEPTH TO WATER BELOW MP 49.5 DIAMETER OF CASING 2 in
 WATER COLUMN IN WELL 32.5 GALLONS EVACUATED PRIOR TO SAMPLING _____
 GALLONS PER FOOT 0.6 CALCULATED 16.3 Actual 17
 GALLONS IN WELL _____ Sampling Pump Intake Setting _____
 (FEET BELOW LAND SURFACE) _____
 EVACUATION METHOD disposable bailer

SAMPLING DATA/FIELD PARAMETERS

COLOR gray-bln ODOR - APPEARANCE cloudy TEMPERATURE 14.8 °F (C)
 OTHER (SPECIFIC ION: OVA: HNU: ETC.) _____
 CONDUCTIVITY - UMHS/CM 1121 PH 6.81
 SAMPLING METHOD AND MATERIAL disposable bailer, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Asbestos (Total)</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Asbestos (Inorganic)</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS _____
 SAMPLING PERSONNEL by Schmidt, K. V. & L.

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.05 2" = 0.15 3" = 0.37 4" = 0.65
 1-1/2" = 0.09 2-1/2" = 0.25 3-1/2" = 0.50 6" = 1.47

	PH	TEMP °C	COND (µS)
	6.93	16.0	1138
	7.09	14.9	1109
	5.92	14.9	1112
	6.72	14.8	1040
	6.81	14.8	1121

Water Sampling Log

PROJECT/NO. South Point RPA
SITE LOCATION South Point, Ohio
WELL NO. SPMW-13 REPLICATE NO. DATE 4/12/01
WEATHER Cloudy 80 Time BEGAN 8:50 Time COMPLETED 9:30

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE MP ELEVATION
TOTAL SOUNDED DEPTH OF WELL BELOW MP 92.0 WATER-LEVEL ELEVATION
DEPTH TO WATER BELOW MP 49.29 DIAMETER OF CASING 2 in
GALLONS PER FOOT 0.6 GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 42.7 CALCULATED 21.4 Actual 22
GALLONS IN WELL Sampling Pump Intake Setting
GALLONS EVACUATED (FEET BELOW LAND SURFACE)
EVACUATION METHOD disposable boiler

SAMPLING DATA/FIELD PARAMETERS

Color clear ODOR none APPEARANCE non-turbid TEMPERATURE 14.6 °F/C
OTHER (SPECIFIC ION; OVA; HNU; ETC.)
CONDUCTIVITY - UMHOS/CM 720 PH 7.52
SAMPLING METHOD AND MATERIAL disposable boiler, groundwater

CONTAINER DESCRIPTION

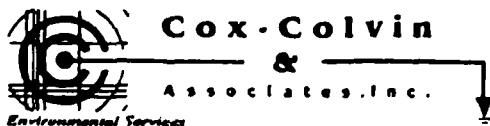
CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Asbestos</u>	<u>1 L poly</u>	<u>HNO₃</u>
<u>Nitrate/Nitrite</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS
SAMPLING PERSONNEL By Schmidt, R. V. 12

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.05 2" = 0.15 3" = 0.37 4" = 0.65
1-1/2" = 0.09 2-1/2" = 0.25 3-1/2" = 0.50 6" = 1.47

PH	Cond	Temp °C
7.16	720	15.7
7.46	746	14.7
7.53	731	15.0
7.54	756	14.6
7.52	726	14.6



Water Sampling Log

PROJECT/NO. South Point RPA
SITE LOCATION South Point, Ohio
WELL NO. SPOB-12R REPLICATE NO. — DATE 4/12/01
WEATHER Partly Sunny 80° Time BEGAN 10:30 Time COMPLETED 11:10

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
TOTAL SOUNDED DEPTH OF WELL BELOW MP 92.0 WATER-LEVEL ELEVATION _____
DEPTH TO WATER BELOW MP 49.85 DIAMETER OF CASING 2 in
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 41.1 CALCULATED 20.5 Actual 21
GALLONS PER FOOT 0.6 Sampling Pump Intake Setting _____
GALLONS IN WELL _____ (FEET BELOW LAND SURFACE) _____
EVACUATION METHOD disposable bailer

SAMPLING DATA/FIELD PARAMETERS

Color Clear ODOR NA APPEARANCE non-turbid TEMPERATURE 56.1 F 10
OTHER (SPECIFIC ION: OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHS/CM 1199 PH 6.71
SAMPLING METHOD AND MATERIAL disposable bailer, ground water

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>App. H. Profile</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Nitrate/Nitrite</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS _____
SAMPLING PERSONNEL By Schmidt, R. V. et al.

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.05	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

	PH	COND.	Temp
	6.30	612	16.8
	6.22	1019	16.0
	6.58	1129	16.0
	6.71	1199	16.1

Water Sampling Log

PROJECT/NO. South Point R DRA
SITE LOCATION South Point, 0410
WELL NO. SP08-34 REPLICATE NO. — DATE 4-12-01
WEATHER 80°F, cloudy Time BEGAN 11:30 Time COMPLETED 12:00

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE — MP ELEVATION —
TOTAL SOUNDED DEPTH OF WELL BELOW MP 82.0 WATER-LEVEL ELEVATION —
DEPTH TO WATER BELOW MP 47.1 DIAMETER OF CASING 2 in
WATER COLUMN IN WELL 34.9 GALLONS EVACUATED PRIOR TO SAMPLING
GALLONS PER FOOT 0.66 CALCULATED 17.5 Actual 18
GALLONS IN WELL — Sampling Pump Intake Setting
EVACUATION METHOD disposable boiler (FEET BELOW LAND SURFACE) —

SAMPLING DATA/FIELD PARAMETERS

Color sl. brn ODOR — APPEARANCE cloudy TEMPERATURE 18.1 °F/C
OTHER (SPECIFIC ION: OVA: HNU: ETC.) —
CONDUCTIVITY - UMHS/CM 1135 PH 7.58
SAMPLING METHOD AND MATERIAL disposable boiler, groundwater

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>As H, Pb, Cu, Ni, Mn, Fe</u>	<u>1 L Poly</u>	<u>HNO₃</u>
<u>Al, Zn, Cd, Cr, Co, Se, Mo, B, V, Si, F, Cl, NO₃, NO₂, NH₄, Hg, As, Pb, Cu, Ni, Mn, Fe</u>	<u>"</u>	<u>H₂SO₄</u>

REMARKS
SAMPLING PERSONNEL By Schmidt, R. V. G. L.

WELL CASING VOLUMES

GAL./FT. 1-1/4" = 0.05 2" = 0.15 3" = 0.37 4" = 0.65
1-1/2" = 0.09 2-1/2" = 0.26 3-1/2" = 0.50 6" = 1.47

	PH	Cond. us	Temp °C
	7.14	996	21.6
	7.47	1022	17.2
	7.48	1154	18.1
	7.52	1140	18.1
	7.58	1135	18.1



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Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-01 REPLICATE NO. — DATE 10/16/01
WEATHER So, Cloudy Time BEGAN 13:00 Time COMPLETED 13:15

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE — MP ELEVATION 563.90
TOTAL SOUNDED DEPTH OF WELL BELOW MP 60 WATER-LEVEL ELEVATION 523.01
DEPTH TO WATER BELOW MP 40.89 DIAMETER OF CASING 2"
WATER COLUMN IN WELL 19.11 GALLONS EVACUATED PRIOR TO SAMPLING
CALCULATED 9.2 Actual 10
GALLONS PER FOOT 0.16 Sampling Pump Intake Setting
GALLONS IN WELL 3.06 (FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color Pale Brown Odor None Appearance Cloudy TEMPERATURE 13.4/13.2
OTHER (SPECIFIC ION; OVA; HNU; ETC.) — 13.2/13.3 °F/°C
CONDUCTIVITY - UMHS/CM 429/365/340/343 PH 6.45/6.83/6.27/6.24
SAMPLING METHOD AND MATERIAL Disposable bailer

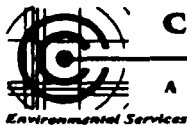
CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selected Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃, Ice</u>

REMARKS
SAMPLING PERSONNEL CAC, CAL

WELL CASING VOLUMES

GAL./FT.	1-1/4"	2"	3"	4"
	0.06	0.16	0.37	0.65
	0.09	0.26	0.50	1.47



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Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-02 REPLICATE NO. — DATE 10/16/01
WEATHER 50° Cloudy Time BEGAN 9:55 Time COMPLETED 10:15

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 569.03
TOTAL SOUNDED DEPTH OF WELL BELOW MP 73 WATER-LEVEL ELEVATION 519.72
DEPTH TO WATER BELOW MP 49.31 DIAMETER OF CASING 2"
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 23.69 CALCULATED 11.4 Actual 12
GALLONS PER FOOT 0.16 Sampling Pump Intake Setting
GALLONS IN WELL 3.79 (FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None Appearance Clear TEMPERATURE 13.0/13.2 °F/°C
OTHER (SPECIFIC ION; OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHO/CM 769/663/626/682 PH 5.75/5.81/6.06/6.77
SAMPLING METHOD AND MATERIAL Disposable Bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selected Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃</u>

REMARKS _____
SAMPLING PERSONNEL CAC, GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. S.B. RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-03 REPLICATE NO. — DATE 10/10/01
WEATHER 50°, Cloudy Time BEGAN 10:30 Time COMPLETED 10:45

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Tip of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 563.08
TOTAL SOUNDED DEPTH OF WELL BELOW MP 65 WATER-LEVEL ELEVATION 517.53
DEPTH TO WATER BELOW MP 45.55 DIAMETER OF CASING 2"
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 19.45 CALCULATED 9.3 Actual 10
GALLONS PER FOOT 1.16 Sampling Pump Intake Setting
GALLONS IN WELL 3.11 (FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bahr

SAMPLING DATA/FIELD PARAMETERS

Color Gray ODOR None APPEARANCE Cloudy TEMPERATURE 12.9/13.1
OTHER (SPECIFIC ION: OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHOS/CM 445/447/461/458 PH 6.9/6.54/6.87/7.13
SAMPLING METHOD AND MATERIAL Disposable Bahr

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selective Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃, Ice</u>

REMARKS _____
SAMPLING PERSONNEL CAC, GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
 SITE LOCATION South Point, Ohio
 WELL NO. SPMW-04 REPLICATE NO. — DATE 10/15/01
 WEATHER 70° Sunny Time BEGAN 15:55 Time COMPLETED 16:10

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 566.77
 TOTAL SOUNDED DEPTH OF WELL BELOW MP 68 WATER-LEVEL ELEVATION 516.36
 DEPTH TO WATER BELOW MP 50.41 DIAMETER OF CASING 2"
 GALLONS EVACUATED PRIOR TO SAMPLING _____
 WATER COLUMN IN WELL 17.59 CALCULATED 8.4 Actual 9
 GALLONS PER FOOT 0.16 Sampling Pump Intake Setting _____
 GALLONS IN WELL 2.8 (FEET BELOW LAND SURFACE) NA
 EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None APPEARANCE Clear TEMPERATURE 14.5/14.0
 OTHER (SPECIFIC ION: OVA: HNU: ETC.) _____
 CONDUCTIVITY - UMHO/CM 546/379/428/459 PH 7.12/6.09/6.20/6.40
 SAMPLING METHOD AND MATERIAL Disposable Bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED:	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selecta Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃, Ice</u>

REMARKS _____
 SAMPLING PERSONNEL CAC, GAL

WELL CASING VOLUMES

GAL./FT.	1-1/4"	2"	3"	4"
	0.06	0.16	0.37	0.65
	0.09	0.26	0.50	1.47

Water Sampling Log

PROJECT/NO. South Paul RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-05 REPLICATE NO. — DATE 10/15/01
WEATHER 65° Dusk Time BEGAN 19:20 Time COMPLETED 19:45

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 523.66
TOTAL SOUNDED DEPTH OF WELL BELOW MP 83 WATER-LEVEL ELEVATION 520.03
DEPTH TO WATER BELOW MP 63.63 DIAMETER OF CASING 2"
WATER COLUMN IN WELL 19.37 GALLONS EVACUATED PRIOR TO SAMPLING
GALLONS PER FOOT 0.16 CALCULATED 9.3 Actual 10
GALLONS IN WELL 3.1 Sampling Pump Intake Setting
(FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None APPEARANCE Clear TEMPERATURE 13.7/13.1
OTHER (SPECIFIC ION; OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHOS/CM 477/454/457/471 PH 7.25/7.29/7.33/7.29
SAMPLING METHOD AND MATERIAL Disposable bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selected metals</u>	<u>1 liter Plastic</u>	<u>HNO₃</u>

REMARKS _____
SAMPLING PERSONNEL CAC, GAL

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47



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Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-07 REPLICATE NO. SPMW-07A DATE 10/16/01
WEATHER 50° Cloudy Time BEGAN 12:25 Time COMPLETED 12:45

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 562.68
TOTAL SOUNDED DEPTH OF WELL BELOW MP 68 WATER-LEVEL ELEVATION 517.53
DEPTH TO WATER BELOW MP 45.15 DIAMETER OF CASING 2"
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 22.85 CALCULATED 11.1 Actual 12
GALLONS PER FOOT 16 Sampling Pump Intake Setting
GALLONS IN WELL 3.7 (FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color None ODOOR None APPEARANCE Clear TEMPERATURE 14.5/14.6
OTHER (SPECIFIC ION; OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHOS/CM 1267/1290/1299/1304 PH 7.15/7.16/7.16/7.17
SAMPLING METHOD AND MATERIAL Disposable bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selected Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃, Ice</u>

REMARKS _____
SAMPLING PERSONNEL CAC, GAL

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-08 REPLICATE NO. — DATE 10/16/01
WEATHER SS, Cloudy Time BEGAN 9:20 Time COMPLETED 9:40

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 565.49
TOTAL SOUNDED DEPTH OF WELL BELOW MP 64 WATER-LEVEL ELEVATION 520.95
DEPTH TO WATER BELOW MP 44.54 DIAMETER OF CASING 2"
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 19.46 CALCULATED 9.3 Actual 10
GALLONS PER FOOT 0.16 Sampling Pump Intake Setting
GALLONS IN WELL 3.11 (FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color Nm OOR None APPEARANCE Clear TEMPERATURE 12.7/12.5
OTHER (SPECIFIC ION; OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHOS/CM 858/918/926/910 PH 5.99/6.12/6.26/6.28
SAMPLING METHOD AND MATERIAL Disposable Bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selected Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃, Ice</u>

REMARKS _____
SAMPLING PERSONNEL CAC GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-09 REPLICATE NO. - DATE 10/15/01
WEATHER 70°, Sunny Time BEGAN 15:25 Time COMPLETED 15:40

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 564.65
TOTAL SOUNDED DEPTH OF WELL BELOW MP 57.5 WATER-LEVEL ELEVATION 520.87
DEPTH TO WATER BELOW MP 43.78 DIAMETER OF CASING 2"
WATER COLUMN IN WELL 13.72 GALLONS EVACUATED PRIOR TO SAMPLING _____
GALLONS PER FOOT 0.14 CALCULATED 6.6 Actual 8
GALLONS IN WELL 2.2 Sampling Pump Intake Setting _____
EVACUATION METHOD Bailer (FEET BELOW LAND SURFACE) NA

SAMPLING DATA/FIELD PARAMETERS

Color None Odor None APPEARANCE Clear TEMPERATURE 12.8 12.2 15.5/13.3 °C
OTHER (SPECIFIC ION; OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHOS/CM 679/543/631/536 PH 5.36/5.25/5.16/5.20
SAMPLING METHOD AND MATERIAL Disposable bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Nitrate, Ammonia</u>	<u>1 liter Plastic 250 ml Port. H₂SO₄</u>	<u>Ice</u>
<u>Selected Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃</u>

REMARKS _____
SAMPLING PERSONNEL CAC, Coal

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47



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Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-10 REPLICATE NO. See Remarks DATE 10/16/01
WEATHER 50° Cloudy Time BEGAN 11:00 Time COMPLETED 11:15

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 525.26
TOTAL SOUNDED DEPTH OF WELL BELOW MP 87.3 WATER-LEVEL ELEVATION 521.49
DEPTH TO WATER BELOW MP 64.31 DIAMETER OF CASING 2"
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 23 CALCULATED 11 Actual 12
GALLONS PER FOOT 0.16 Sampling Pump Intake Setting
GALLONS IN WELL 3.63 (FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color Brown ODOOR None APPEARANCE Cloudy TEMPERATURE 12.6/12.6
OTHER (SPECIFIC ION; OVA; HNU, ETC.) _____
CONDUCTIVITY - UMHO/CM 339/343/340/346 PH 6.54/6.29/6.49/6.30
SAMPLING METHOD AND MATERIAL Disposable bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selected metals</u>	<u>1 liter Plastic</u>	<u>HNO₃, Ice</u>

REMARKS MS/mSD
SAMPLING PERSONNEL CAC, GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE i OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-11 REPLICATE NO. — DATE 10/15/01
WEATHER 70°, Sunny Time BEGAN 17:10 Time COMPLETED 17:25

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 565.82
TOTAL SOUNDED DEPTH OF WELL BELOW MP 62.2 WATER-LEVEL ELEVATION 515.26
DEPTH TO WATER BELOW MP 50.56 DIAMETER OF CASING 2"
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 11.64 CALCULATED 5.6 Actual 6
GALLONS PER FOOT 0.16 Sampling Pump Intake Setting
GALLONS IN WELL 1.9 (FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color Pale Brown ODOOR None APPEARANCE Cloudy TEMPERATURE 14.5/14.1
OTHER (SPECIFIC ION; OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHOS/CM 362/364/384/366 PH 5.88/5.25/5.25/5.25
SAMPLING METHOD AND MATERIAL Disposable bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H2SO4, Ice</u>
<u>Selective Metals</u>	<u>1 liter Plastic</u>	<u>HNO3, Ice</u>

REMARKS _____
SAMPLING PERSONNEL CAC, GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
 SITE LOCATION South Point, Ohio
 WELL NO. SPMW-12 REPLICATE NO. — DATE 10/15/01
 WEATHER 70° Sunny Time BEGAN 16:20 Time COMPLETED 16:40

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
 HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 566.08
 TOTAL SOUNDED DEPTH OF WELL BELOW MP 62.2 WATER-LEVEL ELEVATION 516.23
 DEPTH TO WATER BELOW MP 49.82 DIAMETER OF CASING 2"
 GALLONS EVACUATED PRIOR TO SAMPLING
 WATER COLUMN IN WELL 12.38 CALCULATED 5.9 Actual 6
 GALLONS PER FOOT 0.16 Sampling Pump Intake Setting
 GALLONS IN WELL 1.98 (FEET BELOW LAND SURFACE) NA
 EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color Pale Brown OOR None APPEARANCE Cloudy TEMPERATURE 13.5/13.7 °F/°C
 OTHER (SPECIFIC ION: OVA; HNU; ETC.) _____
 CONDUCTIVITY - UMHO/CM 650/635/636/633 PH 7.12/6.95/6.26/6.88
 SAMPLING METHOD AND MATERIAL Disposable Bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄</u>
<u>Selected Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃</u>

REMARKS _____
 SAMPLING PERSONNEL CAC, GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPMW-13 REPLICATE NO. — DATE 10/15/01
WEATHER 70° Sunny Time BEGAN 16:42 Time COMPLETED 17:00

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 565.91
TOTAL SOUNDED DEPTH OF WELL BELOW MP 68.2 WATER-LEVEL ELEVATION 516.48
DEPTH TO WATER BELOW MP 49.43 DIAMETER OF CASING 2"
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL 18.77 CALCULATED 9 Actual 10
GALLONS PER FOOT 0.16 Sampling Pump Intake Setting
GALLONS IN WELL 3.0 (FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Barler

SAMPLING DATA/FIELD PARAMETERS

COLOR Pch Brown ODOOR None APPEARANCE Cloudy TEMPERATURE 14.2/13.7
OTHER (SPECIFIC ION: OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHS/CM 456/461/461/462 PH 7.28/7.22/7.24/7.29
SAMPLING METHOD AND MATERIAL Disposable Barler

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄</u>
<u>Selected Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃</u>

REMARKS _____
SAMPLING PERSONNEL CAC, GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPOB-12R REPLICATE NO. — DATE 10/15/01
WEATHER 70° Sunny Time BEGAN 17:35 Time COMPLETED 17:50

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 566.78
TOTAL SOUNDED DEPTH OF WELL BELOW MP 64.7 WATER-LEVEL ELEVATION 515.07
DEPTH TO WATER BELOW MP 51.71 DIAMETER OF CASING 2"
WATER COLUMN IN WELL 12.99 GALLONS EVACUATED PRIOR TO SAMPLING
GALLONS PER FOOT 0.16 CALCULATED 6.24 Actual 8
GALLONS IN WELL 2.08 Sampling Pump Intake Setting
(FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color Pale Brown OOR None APPEARANCE Cloudy TEMPERATURE 14.2 °F/°C 14.3
OTHER (SPECIFIC ION; OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHOS/CM 347/809/706/691 PH 6.55/6.72/6.66/6.46
SAMPLING METHOD AND MATERIAL Disposable Bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selected Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃</u>

REMARKS _____
SAMPLING PERSONNEL CAC, GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47

Water Sampling Log

PROJECT/NO. South Point RD/RD PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPOB-34 REPLICATE NO. _____ DATE 10/15/01
WEATHER 65° Sunny Time BEGAN 18:00 Time COMPLETED 19:15

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Top of PVC
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION 565.08
TOTAL SOUNDED DEPTH OF WELL BELOW MP 82 WATER-LEVEL ELEVATION 515.89
DEPTH TO WATER BELOW MP 49.19 DIAMETER OF CASING 2"
WATER COLUMN IN WELL 32.81 GALLONS EVACUATED PRIOR TO SAMPLING
GALLONS PER FOOT 0.16 CALCULATED 15.75 Actual 16
GALLONS IN WELL 5.25 Sampling Pump Intake Setting
(FEET BELOW LAND SURFACE) NA
EVACUATION METHOD Bailer

SAMPLING DATA/FIELD PARAMETERS

Color Gray Odor None APPEARANCE Cloudy TEMPERATURE 14.9/14.9
OTHER (SPECIFIC ION: OVA; HNM; ETC.) _____
CONDUCTIVITY - UMHOS/CM 645/675/704/709 PH 7.10/7.15/7.15/7.25
SAMPLING METHOD AND MATERIAL Disposable bailer

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selected Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃, Ice</u>

REMARKS _____
SAMPLING PERSONNEL CAC, GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47



Cox-Colvin
&
Associates, Inc.

Water Sampling Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPS-23 REPLICATE NO. — DATE 10/15/01
WEATHER 65° Sunny Time BEGAN 18:18 Time COMPLETED 18:25

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Mark on motor housing, painted yellow
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
TOTAL SOUNDED DEPTH OF WELL BELOW MP _____ WATER-LEVEL ELEVATION _____
DEPTH TO WATER BELOW MP _____ DIAMETER OF CASING _____
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL _____ CALCULATED _____ Actual _____
GALLONS PER FOOT _____ Sampling Pump Intake Setting
GALLONS IN WELL _____ (FEET BELOW LAND SURFACE) _____
EVACUATION METHOD Active production well

SAMPLING DATA/FIELD PARAMETERS

Color None ODOR None APPEARANCE Clear TEMPERATURE 14.8 °F/°C
OTHER (SPECIFIC ION; OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHO/CM 715 PH 6.72
SAMPLING METHOD AND MATERIAL Sampling port into bottle

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selenium, Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃, Ice</u>

REMARKS Pumping at 350 GPM
SAMPLING PERSONNEL CAC, GAL

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47



Cox-Colvin

&
Associates, Inc.Water Sampling
Log

PROJECT/NO. South Point RD/RA PAGE 1 OF 1
SITE LOCATION South Point, Ohio
WELL NO. SPIS-24 REPLICATE NO. SPIS-24A DATE 10/16/01
WEATHER 50°, Cloudy Time BEGAN 12:15 Time COMPLETED 12:20

EVACUATION DATA

DESCRIPTION OF MEASURING POINT (MP) Mark on motor house, pointed yellow
HEIGHT OF MP ABOVE/BELOW LAND SURFACE _____ MP ELEVATION _____
TOTAL SOUNDED DEPTH OF WELL BELOW MP _____ WATER-LEVEL ELEVATION _____
DEPTH TO WATER BELOW MP _____ DIAMETER OF CASING _____
GALLONS EVACUATED PRIOR TO SAMPLING
WATER COLUMN IN WELL _____ CALCULATED _____ Actual _____
GALLONS PER FOOT _____ Sampling Pump Intake Setting _____
GALLONS IN WELL _____ (FEET BELOW LAND SURFACE) _____
EVACUATION METHOD Active production well

SAMPLING DATA/FIELD PARAMETERS

Color None ODOOR None APPEARANCE Clear TEMPERATURE 13.6 °F/°C 16
OTHER (SPECIFIC ION: OVA; HNU; ETC.) _____
CONDUCTIVITY - UMHO/CM 936 PH 7.16
SAMPLING METHOD AND MATERIAL Tap on sampling post

CONTAINER DESCRIPTION

CONSTITUENTS SAMPLED	SAMPLE CONTAINER	PRESERVATIVE
<u>Ammonia, Nitrate</u>	<u>250 ml Plastic</u>	<u>H₂SO₄, Ice</u>
<u>Selenium, Metals</u>	<u>1 liter Plastic</u>	<u>HNO₃, Ice</u>

REMARKS Pumping at 310 GPM
SAMPLING PERSONNEL CAC, GAC

WELL CASING VOLUMES

GAL./FT.	1-1/4" = 0.06	2" = 0.16	3" = 0.37	4" = 0.65
	1-1/2" = 0.09	2-1/2" = 0.26	3-1/2" = 0.50	6" = 1.47



CALCULATIONS

EVACUATION

CONTAINER DESCRIPTION

Sampling personnel DW MS

Appendix B

Analytical Data Sheets

Appendix B



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North Canton, OH 44720-6961

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www.stl-inc.com

ANALYTICAL REPORT

finalized 6-6-01
MAS

PROJECT NO. SOUTH POINT RD/RA

Lot #: A1D130171

Mort Schmidt

Cox-Colvin & Associates, Inc.

SEVERN TRENT LABORATORIES, INC.

A handwritten signature in black ink, appearing to read "KJ Kuzior".

Kenneth J. Kuzior
Project Manager

April 26, 2001

CASE NARRATIVE

A1D130171

The following report contains the analytical results for seventeen water samples submitted to STL North Canton by Cox-Colvin & Associates, Inc. from project number South Point RD/RA. The samples were received April 13, 2001, according to documented sample acceptance procedures.

STL North Canton utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameters listed on the analytical methods summary page in accordance with the methods indicated. Preliminary results were provided to Mort Schmidt on April 24, 2001. A summary of QC data for these analyses is included at the rear of the report.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

SUPPLEMENTAL QC INFORMATION

GENERAL CHEMISTRY

Some samples had elevated reporting limits due to matrix interferences or dilution.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the reparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)

Methylene chloride
Acetone
2-Butanone

Semivolatile (GC/MS)

Phthalate Esters

Metals

Copper
Iron
Zinc
Lead*

* for analyses run on TJA Trace ICP or GFAA only

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (Continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the reparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample are spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If the surrogate recoveries are outside criteria for environmental or MS/MSD samples, the batch is acceptable if the Method Blank, LCS, and LCSD surrogate recoveries are within acceptance criteria. The only exception is if the surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank and the associated sample(s) are ND, the batch is acceptable. If the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is reprepared and reanalyzed.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide/PCB, PAH, and Herbicide methods, the surrogate criteria is that one of two surrogate compounds meet acceptance criteria.

STL North Canton, Certifications and Approvals:

Alabama (#41170), California (#2157), Connecticut (#PH-0590), Florida (#E87225) – Florida CompQAPP (#S90651G), Kentucky (#90021), Massachusetts (#M-OH048), Maryland (#272), Minnesota (#39-999-348), Missouri (#6090), New Jersey (#74001), New York (#10975), North Dakota (#R-156), Ohio (#6090), OhioVAP (#CL0024), Pennsylvania (#68-340), South Carolina (#92007001, #92007002, #92007003), Tennessee (#02903), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY, USDA Soil Permit, ACIL Seal of Excellence – Participating Lab Status Award (#82)

ANALYTICAL METHODS SUMMARY

AID130171

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
Ammonia Nitrogen	MCAWW 350.2
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Nitrate-Nitrite	MCAWW 353.2
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B

References:

- MCAWW "Methods for Chemical Analysis of Water and Wastes",
EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical
Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A1D130171

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
EATRR	001	SPIS-24	04/11/01	17:30
EATRT	002	SPIS-24A	04/11/01	17:30
EATRV	003	SPMW-01	04/11/01	12:00
EATRW	004	SPMW-02	04/11/01	15:50
EATRX	005	SPMW-03	04/11/01	10:20
EATRO	006	SPMW-04	04/12/01	08:40
EATR1	007	SPMW-05	04/11/01	11:20
EATR2	008	SPMW-07	04/10/01	18:40
EATR4	009	SPMW-07A	04/10/01	18:40
EATR6	010	SPMW-08	04/11/01	15:15
EATR7	011	SPMW-09	04/11/01	09:00
EATR9	012	SPMW-10	04/11/01	14:00
EATTD	013	SPMW-11	04/11/01	17:00
EATTE	014	SPMW-12	04/12/01	10:20
EATTF	015	SPMW-13	04/12/01	09:30
EATTH	016	SPOB-12R	04/12/01	11:10
EATTK	017	SPOB-34	04/12/01	12:00

NOTE(S) :

The analytical results of the samples listed above are presented on the following pages.

- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-24

TOTAL Metals

Lot-Sample #....: A1D130171-001

Matrix.....: WG

Date Sampled....: 04/11/01 17:30 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRR1AD
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATRR1AF
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATRR1AE
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATRR1AG
		Dilution Factor: 1				
Manganese	0.37	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATRR1AH
		Dilution Factor: 1				
nickel	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRR1AJ
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-24

General Chemistry

Lot-Sample #....: A1D130171-001 Work Order #....: EATRR Matrix.....: WG
Date Sampled....: 04/11/01 17:30 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	7.8	0.5	mg/L	MCAWW 353.2	04/17/01	1107303
		Dilution Factor: 5				
Nitrogen, as Ammonia 25		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-24A

TOTAL Metals

Lot-Sample #...: A1D130171-002

Matrix.....: WG

Date Sampled...: 04/11/01 17:30 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRT1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATRT1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATRT1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATRT1AF
		Dilution Factor: 1				
Manganese	0.37	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATRT1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRT1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-24A

General Chemistry

Lot-Sample #....: A1D130171-002 Work Order #....: EATRT Matrix.....: WG
Date Sampled....: 04/11/01 17:30 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	8.5	0.5	mg/L	MCAWW 353.2	04/17/01	1107386
			Dilution Factor: 5			
Nitrogen, as Ammonia 24		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-01

TOTAL Metals

Lot-Sample #....: A1D130171-003

Matrix.....: WG

Date Sampled....: 04/11/01 12:00 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #....: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRV1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATRV1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATRV1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATRV1AF
		Dilution Factor: 1				
Manganese	0.41	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATRV1AG
		Dilution Factor: 1				
Nickel	0.014	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRV1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-01

General Chemistry

Lot-Sample #...: A1D130171-003 Work Order #...: EATRV Matrix.....: WG
Date Sampled...: 04/11/01 12:00 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	2.7	0.5	mg/L	MCAWW 353.2	04/17/01	1107386
			Dilution Factor: 5			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-02

TOTAL Metals

Lot-Sample #...: A1D130171-004

Matrix.....: WG

Date Sampled...: 04/11/01 15:50 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...	1107101					
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRW1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATRW1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATRW1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATRW1AF
		Dilution Factor: 1				
Manganese	2.1	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATRW1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRW1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-02

General Chemistry

Lot-Sample #....: A1D130171-004 Work Order #....: EATRW Matrix.....: WG
Date Sampled....: 04/11/01 15:50 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	10	1.0	mg/L	MCAWW 353.2	04/17/01	1107386
			Dilution Factor: 10			
Nitrogen, as Ammonia 1.2		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-03

TOTAL Metals

Lot-Sample #...: A1D130171-005

Matrix.....: WG

Date Sampled...: 04/11/01 10:20 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRX1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATRX1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATRX1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATRX1AF
		Dilution Factor: 1				
Manganese	0.19	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATRX1AG
		Dilution Factor: 1				
Nickel	0.010	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATRX1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-03

General Chemistry

Lot-Sample #....: A1D130171-005 Work Order #....: EATRX Matrix.....: WG
Date Sampled....: 04/11/01 10:20 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	4.0	1.0	mg/L	MCAWW 353.2	04/17/01	1107386
			Dilution Factor: 10			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-04

TOTAL Metals

Lot-Sample #...: A1D130171-006

Matrix.....: WG

Date Sampled...: 04/12/01 08:40 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR01AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATR01AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATR01AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATR01AF
		Dilution Factor: 1				
Manganese	0.063	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATR01AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR01AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-04

General Chemistry

Lot-Sample #....: A1D130171-006 Work Order #....: EATRO Matrix.....: WG
Date Sampled....: 04/12/01 08:40 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	3.5	1.0	mg/L	MCAWW 353.2	04/17/01	1107386
			Dilution Factor: 10			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-05

TOTAL Metals

Lot-Sample #...: A1D130171-007

Matrix.....: WG

Date Sampled...: 04/11/01 11:20 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR11AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATR11AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATR11AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATR11AF
		Dilution Factor: 1				
Manganese	0.39	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATR11AG
		Dilution Factor: 1				
Nickel	0.014	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR11AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-05

General Chemistry

Lot-Sample #....: A1D130171-007 Work Order #....: EATR1 Matrix.....: WG
Date Sampled....: 04/11/01 11:20 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	1.2	0.1	mg/L	MCAWW 353.2	04/17/01	1107352
		Dilution Factor: 1				
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-07

TOTAL Metals

Lot-Sample #...: A1D130171-008

Matrix.....: WG

Date Sampled...: 04/10/01 18:40 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR21AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATR21AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATR21AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATR21AF
		Dilution Factor: 1				
Manganese	0.86	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATR21AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR21AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-07

General Chemistry

Lot-Sample #...: A1D130171-008 Work Order #...: EATR2 Matrix.....: WG
Date Sampled...: 04/10/01 18:40 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	17	2.5	mg/L	MCAWW 353.2	04/17/01	1107386
			Dilution Factor: 25			
Nitrogen, as Ammonia	72	1.0	mg/L	MCAWW 350.2	04/21/01	1111129
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-07A

TOTAL Metals

Lot-Sample #...: A1D130171-009

Matrix.....: WG

Date Sampled...: 04/10/01 18:40 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR41AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATR41AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATR41AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATR41AF
		Dilution Factor: 1				
Manganese	0.86	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATR41AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR41AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-07A

General Chemistry

Lot-Sample #...: A1D130171-009 Work Order #...: EATR4 Matrix.....: WG
Date Sampled...: 04/10/01 18:40 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	17	2.5	mg/L	MCAWW 353.2	04/17/01	1107386
		Dilution Factor: 25				
Nitrogen, as Ammonia 75		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-08

TOTAL Metals

Lot-Sample #...: A1D130171-010

Matrix.....: WG

Date Sampled...: 04/11/01 15:15 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR61AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATR61AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATR61AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATR61AF
		Dilution Factor: 1				
Manganese	0.49	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATR61AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR61AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-08

General Chemistry

Lot-Sample #....: A1D130171-010 Work Order #....: EATR6 Matrix.....: WG
Date Sampled....: 04/11/01 15:15 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	ND	0.1	mg/L	MCAWW 353.2	04/17/01	1107352
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	1.0	mg/L	MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-09

TOTAL Metals

Lot-Sample #...: A1D130171-011

Matrix.....: WG

Date Sampled...: 04/11/01 09:00 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	0.020	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR71AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATR71AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATR71AD
		Dilution Factor: 1				
Copper	0.36	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATR71AF
		Dilution Factor: 1				
Manganese	14.7	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATR71AG
		Dilution Factor: 1				
Nickel	0.21	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR71AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-09

General Chemistry

Lot-Sample #....: A1D130171-011 Work Order #....: EATR7 Matrix.....: WG
Date Sampled....: 04/11/01 09:00 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	2.9	0.5	mg/L	MCAWW 353.2	04/17/01	1107386
		Dilution Factor: 5				
Nitrogen, as Ammonia 71		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-10

TOTAL Metals

Lot-Sample #...: A1D130171-012

Matrix.....: WG

Date Sampled...: 04/11/01 14:00 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR91AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATR91AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATR91AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATR91AF
		Dilution Factor: 1				
Manganese	1.6	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATR91AG
		Dilution Factor: 1				
Nickel	0.021	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATR91AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-10

General Chemistry

Lot-Sample #...: A1D130171-012

Work Order #...: EATR9

Matrix.....: WG

Date Sampled...: 04/11/01 14:00

Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	2.4	1.0	mg/L	MCAWW 353.2	04/17/01	1107386
			Dilution Factor: 10			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-11

TOTAL Metals

Lot-Sample #...: A1D130171-013

Matrix.....: WG

Date Sampled...: 04/11/01 17:00 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTD1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATTD1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATTD1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATTD1AF
		Dilution Factor: 1				
Manganese	0.57	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATTD1AG
		Dilution Factor: 1				
Nickel	0.034	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTD1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-11

General Chemistry

Lot-Sample #....: A1D130171-013 Work Order #....: EATTD Matrix.....: WG
Date Sampled....: 04/11/01 17:00 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	6.2	1.0	mg/L	MCAWW 353.2	04/17/01	1107386
			Dilution Factor: 10			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-12

TOTAL Metals

Lot-Sample #...: A1D130171-014

Matrix.....: WG

Date Sampled...: 04/12/01 10:20 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTE1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATTE1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATTE1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATTE1AF
		Dilution Factor: 1				
Manganese	1.0	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATTE1AG
		Dilution Factor: 1				
Nickel	0.032	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTE1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-12

General Chemistry

Lot-Sample #...: A1D130171-014 Work Order #...: EATTE Matrix.....: WG
Date Sampled...: 04/12/01 10:20 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	3.0	0.5	mg/L	MCAWW 353.2	04/17/01	1107386
		Dilution Factor: 5				
Nitrogen, as Ammonia 1.5		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-13

TOTAL Metals

Lot-Sample #...: A1D130171-015

Matrix.....: WG

Date Sampled...: 04/12/01 09:30 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTF1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATTF1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATTF1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATTF1AF
		Dilution Factor: 1				
Manganese	0.52	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATTF1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTF1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-13

General Chemistry

Lot-Sample #....: A1D130171-015 Work Order #....: EATTF Matrix.....: WG
Date Sampled....: 04/12/01 09:30 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	1.7	0.1	mg/L	MCAWW 353.2	04/17/01	1107352
		Dilution Factor: 1				
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPOB-12R

TOTAL Metals

Lot-Sample #...: A1D130171-016

Matrix.....: WG

Date Sampled...: 04/12/01 11:10 Date Received...: 04/13/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTH1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATTH1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATTH1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATTH1AF
		Dilution Factor: 1				
Manganese	0.29	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATTH1AG
		Dilution Factor: 1				
Nickel	0.013	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTH1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPOB-12R

General Chemistry

Lot-Sample #...: A1D130171-016 Work Order #...: EATTH Matrix.....: WG
Date Sampled...: 04/12/01 11:10 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	5.8	0.5	mg/L	MCAWW 353.2	04/17/01	1107386
		Dilution Factor: 5				
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPOB-34

TOTAL Metals

Lot-Sample #...: A1D130171-017

Matrix.....: WG

Date Sampled...: 04/12/01 12:00 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...	1107101					
Arsenic	0.017	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTK1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EATTK1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EATTK1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EATTK1AF
		Dilution Factor: 1				
Manganese	0.40	0.015	mg/L	SW846 6010B	04/17-04/23/01	EATTK1AG
		Dilution Factor: 1				
kel	0.011	0.010	mg/L	SW846 6010B	04/17-04/23/01	EATTK1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPOB-34

General Chemistry

Lot-Sample #....: A1D130171-017 Work Order #....: EATTK Matrix.....: WG
Date Sampled....: 04/12/01 12:00 Date Received...: 04/13/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	ND	0.1	mg/L	MCAWW 353.2	04/17/01	1107352
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	1.0	mg/L	MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1				

QUALITY CONTROL SECTION

METHOD BLANK REPORT

TOTAL Metals

Client Lot #...: A1D130171

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: A1D170000-101 Prep Batch #...: 1107101						
Arsenic	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EAWJ81AA
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	04/17-04/23/01	EAWJ81AD
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	04/17-04/23/01	EAWJ81AC
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	04/17-04/23/01	EAWJ81AE
		Dilution Factor: 1				
Manganese	ND	0.015	mg/L	SW846 6010B	04/17-04/23/01	EAWJ81AF
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	04/17-04/23/01	EAWJ81AG
		Dilution Factor: 1				

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A1D130171

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrate-Nitrite	ND	Work Order #: EAW861AA 0.1	mg/L	MB Lot-Sample #: MCAWW 353.2	A1D170000-303 04/17/01	1107303
		Dilution Factor: 1				
Nitrate-Nitrite	ND	Work Order #: EAX2Q1AA 0.1	mg/L	MB Lot-Sample #: MCAWW 353.2	A1D170000-352 04/17/01	1107352
		Dilution Factor: 1				
Nitrate-Nitrite	ND	Work Order #: EAXLJ1AA 0.1	mg/L	MB Lot-Sample #: MCAWW 353.2	A1D170000-386 04/17/01	1107386
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	Work Order #: EA7CE1AA 1.0	mg/L	MB Lot-Sample #: MCAWW 350.2	A1D210000-129 04/21/01	1111129
		Dilution Factor: 1				

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D130171

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
LCS Lot-Sample#: A1D170000-101 Prep Batch #...: 1107101					
Arsenic	99	(80 - 120)	SW846 6010B	04/17-04/23/01	EAWJ81AH
		Dilution Factor: 1			
Cadmium	103	(80 - 120)	SW846 6010B	04/17-04/23/01	EAWJ81AJ
		Dilution Factor: 1			
Beryllium	100	(80 - 120)	SW846 6010B	04/17-04/23/01	EAWJ81AK
		Dilution Factor: 1			
Copper	100	(80 - 120)	SW846 6010B	04/17-04/23/01	EAWJ81AL
		Dilution Factor: 1			
Manganese	101	(80 - 120)	SW846 6010B	04/17-04/23/01	EAWJ81AM
		Dilution Factor: 1			
Nickel	100	(80 - 120)	SW846 6010B	04/17-04/23/01	EAWJ81AN
		Dilution Factor: 1			

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D130171

Matrix.....: WATER

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrate-Nitrite	93	Work Order #: EAW861AC (85 - 115)	LCS Lot-Sample#: A1D170000-303 MCAWW 353.2	04/17/01	1107303
		Dilution Factor: 1			
Nitrate-Nitrite	94	Work Order #: EAX2Q1AC (85 - 115)	LCS Lot-Sample#: A1D170000-352 MCAWW 353.2	04/17/01	1107352
		Dilution Factor: 1			
Nitrate-Nitrite	96	Work Order #: EAXLJ1AC (85 - 115)	LCS Lot-Sample#: A1D170000-386 MCAWW 353.2	04/17/01	1107386
		Dilution Factor: 1			
Nitrogen, as Ammonia	88	Work Order #: EA7CE1AC (80 - 120)	LCS Lot-Sample#: A1D210000-129 MCAWW 350.2	04/21/01	1111129
		Dilution Factor: 1			

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1D130171

Matrix.....: WG

Date Sampled...: 04/11/01 14:00 Date Received...: 04/13/01

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1D130171-012 Prep Batch #...: 1107101						
Arsenic	105	(75 - 125)		SW846 6010B	04/17-04/23/01	EATR91AM
	103	(75 - 125) 1.8	(0-20)	SW846 6010B	04/17-04/23/01	EATR91AN
		Dilution Factor: 1				
Beryllium	107	(75 - 125)		SW846 6010B	04/17-04/23/01	EATR91AR
	105	(75 - 125) 1.8	(0-20)	SW846 6010B	04/17-04/23/01	EATR91AT
		Dilution Factor: 1				
Cadmium	107	(75 - 125)		SW846 6010B	04/17-04/23/01	EATR91AP
	105	(75 - 125) 1.9	(0-20)	SW846 6010B	04/17-04/23/01	EATR91AQ
		Dilution Factor: 1				
Copper	105	(75 - 125)		SW846 6010B	04/17-04/23/01	EATR91AU
	104	(75 - 125) 1.0	(0-20)	SW846 6010B	04/17-04/23/01	EATR91AV
		Dilution Factor: 1				
Manganese	110	(75 - 125)		SW846 6010B	04/17-04/23/01	EATR91AW
	104	(75 - 125) 1.3	(0-20)	SW846 6010B	04/17-04/23/01	EATR91AX
		Dilution Factor: 1				
Nickel	105	(75 - 125)		SW846 6010B	04/17-04/23/01	EATR91A0
	103	(75 - 125) 1.6	(0-20)	SW846 6010B	04/17-04/23/01	EATR91A1
		Dilution Factor: 1				

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1D130171

Matrix.....: WG

Date Sampled...: 04/11/01 14:00 Date Received...: 04/13/01

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrate-Nitrite			WO#:	EATRR1AL-MS/EATRR1AM-MSD	MS Lot-Sample #:	A1D130171-001	
	75	(85 - 115)			MCAWW 353.2	04/17/01	1107303
	84	(85 - 115)	2.3	(0-20)	MCAWW 353.2	04/17/01	1107303
			Dilution Factor: 1				
Nitrate-Nitrite			WO#:	EATR91A2-MS/EATR91A3-MSD	MS Lot-Sample #:	A1D130171-012	
	84 N	(85 - 115)			MCAWW 353.2	04/17/01	1107386
	86	(85 - 115)	1.4	(0-20)	MCAWW 353.2	04/17/01	1107386
			Dilution Factor: 1				
Nitrogen, as Ammonia			WO#:	EATR91AK-MS/EATR91AL-MSD	MS Lot-Sample #:	A1D130171-012	
	88	(80 - 120)			MCAWW 350.2	04/21/01	1111129
	125 N, *	(80 - 120)	32	(0-20)	MCAWW 350.2	04/21/01	1111129
			Dilution Factor: 1				

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

* Spiked analyte recovery is outside stated control limits.

* Relative percent difference (RPD) is outside stated control limits.

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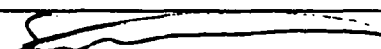
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Project:

Project Number: **South Point RD/RA**Sampler(s): **KWV MAS**

Sample ID	Date	Time	Media	Container Type	Preservative	Requested Analysis	Cooler ID
SPIS-24	4/11/2001	17:30	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPIS-24	4/11/2001	17:30	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPIS-24A	4/11/2001	17:30	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPIS-24A	4/11/2001	17:30	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPMW-01	4/11/2001	12:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-01	4/11/2001	12:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-02	4/11/2001	15:50	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-02	4/11/2001	15:50	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-03	4/11/2001	10:20	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-03	4/11/2001	10:20	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-04	4/12/2001	08:40	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPMW-04	4/12/2001	08:40	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPMW-05	4/11/2001	11:20	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-05	4/11/2001	11:20	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-07	4/10/2001	18:40	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-07	4/10/2001	18:40	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-07A	4/10/2001	18:40	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-07A	4/10/2001	18:40	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-08	4/11/2001	15:15	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-08	4/11/2001	15:15	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-09	4/11/2001	09:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-09	4/11/2001	09:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326

 4-13-01 0920

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Project:

Project Number: **South Point RD/RA**Sampler(s): **KWV MAS**

Sample ID	Date	Time	Media	Container Type	Preservative	Requested Analysis	Cooler ID
SPMW-10	4/11/2001	14:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-10	4/11/2001	14:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-10MS	4/11/2001	14:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-10MS	4/11/2001	14:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-10MSD	4/11/2001	14:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-10MSD	4/11/2001	14:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-11	4/11/2001	17:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-11	4/11/2001	17:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-12	4/12/2001	10:20	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPMW-12	4/12/2001	10:20	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPMW-13	4/12/2001	09:30	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPMW-13	4/12/2001	09:30	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPOB-12R	4/12/2001	11:10	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPOB-12R	4/12/2001	11:10	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPOB-34	4/12/2001	12:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPOB-34	4/12/2001	12:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
Temp	4/10/2001	08:00	Aqueous	1 Oz. Poly	Ice	Temperature	J326
Temp	4/10/2001	08:00	Aqueous	1 Oz. Poly	Ice	Temperature	K57

Sum 4-13-01 0920

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Project:

Project Number: **South Point RD/RA**Sampler(s): **KWV MAS**

Sample ID	Date	Time	Media	Container Type	Preservative	Requested Analysis	Cooler ID
Relinquished By: 	4-12-01	18:00					
	Date: <i>4-12-01</i>	Time: <i>18:00</i>					
Relinquished By:	Date:	Time:					
Relinquished By:	Date:	Time:					
Relinquished By:	Date:	Time:					

Comments: **See attached PQL table for reporting limits. FedEx Air bill numbers are 791527290898 and 790925543377.**Deliverables: Data Package: **Standard**Turnaround Time: **Normal**Disk Deliverables? **Yes**Number of Copies: **1**Send Data to: **Mort Schmidt**Shipping Info: Carrier: **FedEx**Waybill: **See Comments**Custody Seal: *2 pc. each* Cooler Preserv. **Water Ice**

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Project:

Project Number: **South Point RD/RA**Sampler(s): **KWV MAS**

Sample ID	Date	Time	Media	Container Type	Preservative	Requested Analysis	Cooler ID
SPIS-24	4/11/2001	17:30	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPIS-24	4/11/2001	17:30	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPIS-24A	4/11/2001	17:30	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPIS-24A	4/11/2001	17:30	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPMW-01	4/11/2001	12:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-01	4/11/2001	12:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-02	4/11/2001	15:50	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-02	4/11/2001	15:50	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-03	4/11/2001	10:20	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-03	4/11/2001	10:20	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-04	4/12/2001	08:40	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPMW-04	4/12/2001	08:40	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPMW-05	4/11/2001	11:20	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-05	4/11/2001	11:20	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-07	4/10/2001	18:40	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-07	4/10/2001	18:40	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-07A	4/10/2001	18:40	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-07A	4/10/2001	18:40	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-08	4/11/2001	15:15	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-08	4/11/2001	15:15	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-09	4/11/2001	09:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-09	4/11/2001	09:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326

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Page 2 of 3

*Project:**Project Number:* South Point RD/RA*Sampler(s):* KWV MAS

Sample ID	Date	Time	Media	Container Type	Preservative	Requested Analysis	Cooler ID
SPMW-10	4/11/2001	14:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-10	4/11/2001	14:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-10MS	4/11/2001	14:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-10MS	4/11/2001	14:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-10MSD	4/11/2001	14:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-10MSD	4/11/2001	14:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-11	4/11/2001	17:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	J326
SPMW-11	4/11/2001	17:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J326
SPMW-12	4/12/2001	10:20	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPMW-12	4/12/2001	10:20	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPMW-13	4/12/2001	09:30	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPMW-13	4/12/2001	09:30	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPOB-12R	4/12/2001	11:10	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPOB-12R	4/12/2001	11:10	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
SPOB-34	4/12/2001	12:00	Ground Water	1 Liter Plastic	H2SO4	Ammonia and Nitrate/Nitrite	K57
SPOB-34	4/12/2001	12:00	Ground Water	1 Liter Plastic	HNO3	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	K57
Temp	4/10/2001	08:00	Aqueous	1 Oz. Poly	Ice	Temperature	J326
Temp	4/10/2001	08:00	Aqueous	1 Oz. Poly	Ice	Temperature	K57

Cox-Colvin & Associates, Inc.

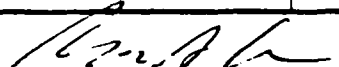
1151 Bethel Road
Suite 101
Columbus, Ohio 43220
Phone (614) 442-1970
Fax (614) 442-1971

Chain-of-Custody Record*Analytical Laboratory: Severn Trent*

Page 3 of 3

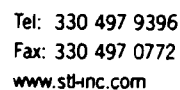
Project:

Project Number: **South Point RD/RA**Sampler(s): **KWV MAS**

Sample ID	Date	Time	Media	Container Type	Preservative	Requested Analysis	Cooler ID
Relinquished By: 	4-12-01						
	Date: <i>4-12-01</i>	Time: <i>18:00</i>					
Relinquished By:	Date:	Time:					
Relinquished By:	Date:	Time:					

Comments: See attached PQL table for reporting limits. FedEx Air bill numbers are 791527290898 and 790925543377.

Deliverables Data Package: **Standard**Turnaround Time: **Normal**Disk Deliverables? **Yes**Number of Copies: **1**Send Data to: **Mort Schmidt**Shipping Info: Carrier: **FedEx**Waybill: **See Comments**Custody Seal: *2 pc cooler* Cooler Preserv. **Water Ice**



STL North Canton is a part of Severn Trent Laboratories, Inc.

**SEVERN
TRENT
SERVICES**

STL North Canton
4101 Shuffel Drive NW
North Canton, OH 44720
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October 7, 2001

A note to our clients:

Effective October 7, 2001, STL North Canton has changed the way inorganic blank contamination is being flagged on our final reports.

Historically, an inorganic (metals & general chemistry) result has been flagged with a special code when contamination at a level above the reporting limit was found in the associated method blank. The criteria used by the laboratory to determine the acceptability of the result has been included as a footnote on the same page. Blank contamination between the method detection limit (MDL) and the reporting limit (RL) was never flagged on the sample result pages.

As of October 7, 2001, metals and general chemistry results will be flagged with a "J" any time the laboratory has reported a concentration of an element/analyte in your sample and has also found a reportable concentration of the same element/analyte in the associated method blank. The changes will affect your final report as follows:

➤ ***If you have not requested that element/analyte concentrations between the MDL and the RL (estimated values) be reported:***

When the laboratory is reporting only concentrations above the reporting limit, an inorganic result will be flagged with a "J" if there is a reported concentration in the sample and the element/analyte was also found in the associated method blank at a concentration greater than the reporting limit.

➤ ***If you have requested that element/analyte concentrations between the MDL and the RL (estimated values) be reported:***

If estimated values of metals/analytes are reported, an inorganic result between the method detection limit and the reporting limit will be flagged with a "B" to indicate that the concentration is estimated. Going forward, the result will also be flagged with a "J" if the element/analyte was also found in the associated method blank at a concentration above the applicable method detection limit.

In either case, when method blank contamination is present, the laboratory evaluates the level of contamination against a set of acceptance criteria to determine whether the associated sample results will be accepted, or rework performed. The acceptance criteria are defined in a two-page narrative describing "Quality Control Elements" that is included in your final report immediately after the Case Narrative.

The end result of these changes is that you may find more "blank contamination" flags in your inorganic results than you have been accustomed to seeing in the past. Please know that nothing has changed in the laboratory's processes. The change is simply intended to give our clients information that is easier to read and interpret.

If you have any questions related to this change, please don't hesitate to call your project manager for more information.

CASE NARRATIVE

A1J180104

The following report contains the analytical results for eighteen water samples submitted to STL North Canton by Cox-Colvin & Associates, Inc. from the South Point RD/RA Site. The samples were received October 17, 2001, according to documented sample acceptance procedures.

STL utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter listed on the analytical methods summary page in accordance with the methods indicated. Preliminary results were provided to Mort Schmidt on October 29, 2001.

The results included in this report have been reviewed for compliance with the laboratory QA/QC plan. All data have been found to be compliant with laboratory protocol.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the reparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

Volatile (GC or GC/MS)

Methylene chloride
Acetone
2-Butanone

Semivolatile (GC/MS)

Phthalate Esters

Metals

Copper
Iron
Zinc
Lead*

- *for analyses run on TJA Trace ICP, ICPMS or GFAA only*
- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (Continued)

- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the reparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is repped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be repped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, PAH, and Herbicide methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.



STL North Canton Certifications and Approvals:

Alabama (#41170), California (#2157), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#100439), Kansas (#E10336), Kentucky (#90021), Massachusetts (#M-OH048),
Maryland (#272), Minnesota (#39-999-348), Missouri (#6090), New Jersey (#74001),
New York (#10975), North Dakota (#R-156), Ohio (#6090), OhioVAP (#CL0024),
Pennsylvania (#68-340), Rhode Island (#237), South Carolina (#92007001, #92007002, #92007003),
Tennessee (#02903), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY,
USDA Soil Permit, ACIL Seal of Excellence – Participating Lab Status Award (#82)

ANALYTICAL METHODS SUMMARY

ALJ180104

<u>PARAMETER</u>	<u>ANALYTICAL METHOD</u>
Ammonia Nitrogen	MCAWW 350.2
Inductively Coupled Plasma (ICP) Metals	SW846 6010B
Nitrate-Nitrite	MCAWW 353.2
Trace Inductively Coupled Plasma (ICP) Metals	SW846 6010B

References:

- MCAWW "Methods for Chemical Analysis of Water and Wastes",
EPA-600/4-79-020, March 1983 and subsequent revisions.
- SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical
Methods", Third Edition, November 1986 and its updates.

SAMPLE SUMMARY

A1J180104

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
EMA9F	001	SPIS-23	10/15/01	18:25
EMA9G	002	SPIS-24	10/16/01	12:20
EMA9H	003	SPIS-24A	10/16/01	12:20
EMA9J	004	SPMW-01	10/16/01	13:15
EMA9K	005	SPMW-02	10/16/01	10:15
EMA9L	006	SPMW-03	10/16/01	10:45
EMA9M	007	SPMW-04	10/15/01	16:10
EMA9N	008	SPMW-05	10/15/01	19:45
EMA9P	009	SPMW-07	10/16/01	12:45
EMA9Q	010	SPMW-07A	10/16/01	12:45
EMA9T	011	SPMW-08	10/16/01	09:40
EMA9V	012	SPMW-09	10/15/01	15:40
EMA9W	013	SPMW-10	10/16/01	11:15
EMA9X	014	SPMW-11	10/15/01	17:25
EMA90	015	SPMW-12	10/15/01	16:40
EMA91	016	SPMW-13	10/15/01	17:00
EMA92	017	SPOB-12R	10/15/01	17:50
EMA93	018	SPOB-34	10/15/01	18:15

NOTE(S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-23

TOTAL Metals

Lot-Sample #...: A1J180104-001

Matrix.....: WG

Date Sampled...: 10/15/01 18:25 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9F1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9F1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9F1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9F1AF
		Dilution Factor: 1				
Manganese	0.24	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9F1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9F1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-23

General Chemistry

Lot-Sample #...: A1J180104-001 Work Order #...: EMA9F Matrix.....: WG
Date Sampled...: 10/15/01 18:25 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	3.7	1.0	mg/L	MCAWW 353.2	10/24/01	1297510
			Dilution Factor: 10			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-24

TOTAL Metals

Lot-Sample #....: ALJ180104-002

Matrix.....: WG

Date Sampled....: 10/16/01 12:20 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9G1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9G1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9G1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9G1AF
		Dilution Factor: 1				
Manganese	0.32	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9G1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9G1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-24

General Chemistry

Lot-Sample #...: A1J180104-002 Work Order #...: EMA9G Matrix.....: WG
 Date Sampled...: 10/16/01 12:20 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	11	1.0	mg/L	MCAWW 353.2	10/24/01	1297510
		Dilution Factor: 10				
Nitrogen, as Ammonia	19	1.0	mg/L	MCAWW 350.2	10/20/01	1293094
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-24A

TOTAL Metals

Lot-Sample #...: ALJ180104-003

Matrix.....: WG

Date Sampled...: 10/16/01 12:20 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9H1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9H1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9H1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9H1AF
		Dilution Factor: 1				
Manganese	0.30	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9H1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9H1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPIS-24A

General Chemistry

Lot-Sample #...: ALJ180104-003 Work Order #...: EMA9H Matrix.....: WG
Date Sampled...: 10/16/01 12:20 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	11	1.0	mg/L	MCAWW 353.2	10/24/01	1297510
		Dilution Factor: 10				
Nitrogen, as Ammonia	18	1.0	mg/L	MCAWW 350.2	10/20/01	1293094
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-01

TOTAL Metals

Lot-Sample #...: A1J180104-004

Matrix.....: WG

Date Sampled...: 10/16/01 13:15 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9J1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9J1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9J1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9J1AF
		Dilution Factor: 1				
Manganese	0.24	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9J1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9J1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-01

General Chemistry

Lot-Sample #...: A1J180104-004 Work Order #...: EMA9J Matrix.....: WG
Date Sampled...: 10/16/01 13:15 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	3.6	1.0	mg/L	MCAWW 353.2	10/24/01	1297510
			Dilution Factor: 10			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-02

TOTAL Metals

Lot-Sample #...: A1J180104-005

Matrix.....: WG

Date Sampled...: 10/16/01 10:15 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>WORK</u> <u>ORDER #</u>
Prep Batch #...: 1292308						
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9K1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9K1AF
		Dilution Factor: 1				
Manganese	1.0	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9K1AG
		Dilution Factor: 1				
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9K1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9K1AE
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9K1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-03

TOTAL Metals

Lot-Sample #...: A1J180104-006

Matrix.....: WG

Date Sampled...: 10/16/01 10:45 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9L1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9L1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9L1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9L1AF
		Dilution Factor: 1				
Manganese	2.6	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9L1AG
		Dilution Factor: 1				
Nickel	0.039	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9L1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-03

General Chemistry

Lot-Sample #...: A1J180104-006 Work Order #...: EMA9L Matrix.....: WG
Date Sampled...: 10/16/01 10:45 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	0.2	0.1	mg/L	MCAWW 353.2	10/24/01	1297509
		Dilution Factor: 1				
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-04

TOTAL Metals

Lot-Sample #...: ALJ180104-007

Matrix.....: WG

Date Sampled...: 10/15/01 16:10 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9M1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9M1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9M1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9M1AF
		Dilution Factor: 1				
Manganese	0.065	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9M1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9M1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-04

General Chemistry

Lot-Sample #...: A1J180104-007 Work Order #...: EMA9M
Date Sampled...: 10/15/01 16:10 Date Received...: 10/17/01

Matrix.....: WG

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	2.9	1.0	mg/L	MCAWW 353.2	10/24/01	1297510
			Dilution Factor: 10			
Nitrogen, as Ammonia 1.1		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-05

TOTAL Metals

Lot-Sample #...: A1J180104-008

Matrix.....: WG

Date Sampled...: 10/15/01 19:45 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING</u> <u>LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION-</u> <u>ANALYSIS DATE</u>	<u>WORK</u> <u>ORDER #</u>
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9N1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9N1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9N1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9N1AF
		Dilution Factor: 1				
Manganese	0.46	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9N1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9N1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-05

General Chemistry

Lot-Sample #....: ALJ180104-008 Work Order #....: EMA9N Matrix.....: WG
Date Sampled....: 10/15/01 19:45 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	0.9	0.1	mg/L	MCAWW 353.2	10/24/01	1297509
			Dilution Factor: 1			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-07

TOTAL Metals

Lot-Sample #...: A1J180104-009

Matrix.....: WG

Date Sampled...: 10/16/01 12:45 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9P1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9P1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9P1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9P1AF
		Dilution Factor: 1				
Manganese	0.29	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9P1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9P1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-07

General Chemistry

Lot-Sample #...: ALJ180104-009 Work Order #...: EMA9P Matrix.....: WG
Date Sampled...: 10/16/01 12:45 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	0.4	0.1	mg/L	MCAWW 353.2	10/24/01	1297509
			Dilution Factor: 1			
Nitrogen, as Ammonia 63		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-07A

TOTAL Metals

Lot-Sample #...: A1J180104-010

Matrix.....: WG

Date Sampled...: 10/16/01 12:45 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9Q1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9Q1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9Q1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9Q1AF
		Dilution Factor: 1				
Manganese	0.32	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9Q1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9Q1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-07A

General Chemistry

Lot-Sample #....: ALJ180104-010 Work Order #....: EMA9Q Matrix.....: WG
Date Sampled....: 10/16/01 12:45 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	0.4	0.1	mg/L	MCAWW 353.2	10/24/01	1297509
		Dilution Factor: 1				
Nitrogen, as Ammonia 47		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-08

TOTAL Metals

Lot-Sample #...: ALJ180104-011

Matrix.....: WG

Date Sampled...: 10/16/01 09:40 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9T1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9T1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9T1AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9T1AF
		Dilution Factor: 1				
Manganese	0.18	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9T1AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9T1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-08

General Chemistry

Lot-Sample #....: ALJ180104-011 Work Order #....: EMA9T
Date Sampled....: 10/16/01 09:40 Date Received...: 10/17/01

Matrix.....: WG

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	0.2	0.1	mg/L	MCAWW 353.2	10/24/01	1297509
			Dilution Factor: 1			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-09

TOTAL Metals

Lot-Sample #....: A1J180104-012

Matrix.....: WG

Date Sampled....: 10/15/01 15:40 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #....: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9V1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9V1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9V1AD
		Dilution Factor: 1				
Copper	0.037	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9V1AF
		Dilution Factor: 1				
Manganese	3.4	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9V1AG
		Dilution Factor: 1				
Nickel	0.020	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9V1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-09

General Chemistry

Lot-Sample #....: A1J180104-012 Work Order #....: EMA9V Matrix.....: WG
Date Sampled....: 10/15/01 15:40 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	5.1	1.0	mg/L	MCAWW 353.2	10/24/01	1297510
			Dilution Factor: 10			
Nitrogen, as Ammonia 17		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-10

TOTAL Metals

Lot-Sample #...: A1J180104-013

Matrix.....: WG

Date Sampled...: 10/16/01 11:15 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9W1AE
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9W1AL
		Dilution Factor: 1				
Cadmium	0.0052	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9W1AH
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9W1AP
		Dilution Factor: 1				
Manganese	7.4	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9W1AT
		Dilution Factor: 1				
Nickel	0.10	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9W1AW
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-10

General Chemistry

Lot-Sample #...: A1J180104-013 Work Order #...: EMA9W Matrix.....: WG
Date Sampled...: 10/16/01 11:15 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	1.4	0.1	mg/L	MCAWW 353.2	10/24/01	1297509
		Dilution Factor: 1				
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-11

TOTAL Metals

Lot-Sample #...: ALJ180104-014

Matrix.....: WG

Date Sampled...: 10/15/01 17:25 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	0.013	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9X1AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA9X1AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA9X1AD
		Dilution Factor: 1				
Copper	0.025	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA9X1AF
		Dilution Factor: 1				
Manganese	0.74	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA9X1AG
		Dilution Factor: 1				
Nickel	0.045	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA9X1AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-11

General Chemistry

Lot-Sample #....: A1J180104-014 Work Order #....: EMA9X
 Date Sampled....: 10/15/01 17:25 Date Received...: 10/17/01

Matrix.....: WG

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	5.6	1.0	mg/L	MCAWW 353.2	10/24/01	1297510
			Dilution Factor: 10			
Nitrogen, as Ammonia ND		1.0	mg/L	MCAWW 350.2	10/20/01	1293094
			Dilution Factor: 1			

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPMW-12

TOTAL Metals

Lot-Sample #...: A1J180104-015

Matrix.....: WG

Date Sampled...: 10/15/01 16:40 Date Received...: 10/17/01

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
Prep Batch #...: 1292308						
Arsenic	0.018	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA901AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA901AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA901AD
		Dilution Factor: 1				
Copper	0.043	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA901AF
		Dilution Factor: 1				
Manganese	1.7	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA901AG
		Dilution Factor: 1				
Nickel	0.053	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA901AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPOB-34

TOTAL Metals

Lot-Sample #...: A1J180104-018

Matrix.....: WG

Date Sampled...: 10/15/01 18:15 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>REPORTING LIMIT</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
Prep Batch #...: 1292308						
Arsenic	0.012	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA931AC
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/25/01	EMA931AE
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/25/01	EMA931AD
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/25/01	EMA931AF
		Dilution Factor: 1				
Manganese	0.32	0.015	mg/L	SW846 6010B	10/22-10/25/01	EMA931AG
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/25/01	EMA931AH
		Dilution Factor: 1				

COX-COLVIN & ASSOCIATES, INC.

Client Sample ID: SPOB-34

General Chemistry

Lot-Sample #....: ALJ180104-018 Work Order #....: EMA93 Matrix.....: WG
Date Sampled....: 10/15/01 18:15 Date Received...: 10/17/01

<u>PARAMETER</u>	<u>RESULT</u>	<u>RL</u>	<u>UNITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	ND	0.1	mg/L	MCAWW 353.2	10/24/01	1297509
		Dilution Factor: 1				
Nitrogen, as Ammonia	ND	1.0	mg/L	MCAWW 350.2	10/20/01	1293094
		Dilution Factor: 1				

QUALITY CONTROL SECTION

METHOD BLANK REPORT

TOTAL Metals

Client Lot #....: A1J180104

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MB Lot-Sample #: A1J190000-308 Prep Batch #....: 1292308						
Arsenic	ND	0.010	mg/L	SW846 6010B	10/22-10/24/01	EMFXH1AA
		Dilution Factor: 1				
Beryllium	ND	0.0030	mg/L	SW846 6010B	10/22-10/24/01	EMFXH1AD
		Dilution Factor: 1				
Cadmium	ND	0.0020	mg/L	SW846 6010B	10/22-10/24/01	EMFXH1AC
		Dilution Factor: 1				
Copper	ND	0.025	mg/L	SW846 6010B	10/22-10/24/01	EMFXH1AE
		Dilution Factor: 1				
Manganese	ND	0.015	mg/L	SW846 6010B	10/22-10/24/01	EMFXH1AF
		Dilution Factor: 1				
Nickel	ND	0.010	mg/L	SW846 6010B	10/22-10/24/01	EMFXH1AG
		Dilution Factor: 1				

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

METHOD BLANK REPORT

General Chemistry

Client Lot #...: A1J180104

Matrix.....: WATER

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrate-Nitrite	ND	Work Order #: EMP0Q1AA 0.1	mg/L	MB Lot-Sample #: A1J240000-509 MCAWW 353.2	10/24/01	1297509
Dilution Factor: 1						
Nitrate-Nitrite	ND	Work Order #: EMP0P1AA 0.1	mg/L	MB Lot-Sample #: A1J240000-510 MCAWW 353.2	10/24/01	1297510
Dilution Factor: 1						
Nitrogen, as Ammonia	ND	Work Order #: EMG7R1AA 1.0	mg/L	MB Lot-Sample #: A1J200000-094 MCAWW 350.2	10/20/01	1293094
Dilution Factor: 1						

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1J180104

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>WORK ORDER #</u>
LCS Lot-Sample#: A1J190000-308 Prep Batch #...: 1292308					
Arsenic	101	(80 - 120)	SW846 6010B	10/22-10/24/01	EMFXH1AH
		Dilution Factor: 1			
Cadmium	101	(80 - 120)	SW846 6010B	10/22-10/24/01	EMFXH1AJ
		Dilution Factor: 1			
Beryllium	103	(80 - 120)	SW846 6010B	10/22-10/24/01	EMFXH1AK
		Dilution Factor: 1			
Copper	104	(80 - 120)	SW846 6010B	10/22-10/24/01	EMFXH1AL
		Dilution Factor: 1			
Manganese	107	(80 - 120)	SW846 6010B	10/22-10/24/01	EMFXH1AM
		Dilution Factor: 1			
Nickel	95	(80 - 120)	SW846 6010B	10/22-10/24/01	EMFXH1AN
		Dilution Factor: 1			

NOTE(S):

Calculations are performed before rounding to avoid round-off errors in calculated results.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1J180104

Matrix.....: WATER

<u>PARAMETER</u>	<u>PERCENT RECOVERY</u>	<u>RECOVERY LIMITS</u>	<u>METHOD</u>	<u>PREPARATION- ANALYSIS DATE</u>	<u>PREP BATCH #</u>
Nitrate-Nitrite	110	Work Order #: EMP0Q1AC (89 - 116)	LCS Lot-Sample#: A1J240000-509 MCAWW 353.2	10/24/01	1297509
		Dilution Factor: 1			
Nitrate-Nitrite	111	Work Order #: EMP0P1AC (89 - 116)	LCS Lot-Sample#: A1J240000-510 MCAWW 353.2	10/24/01	1297510
		Dilution Factor: 1			
Nitrogen, as Ammonia	105	Work Order #: EMG7R1AC (85 - 114)	LCS Lot-Sample#: A1J200000-094 MCAWW 350.2	10/20/01	1293094
		Dilution Factor: 1			

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

MATRIX SPIKE SAMPLE EVALUATION REPORT

TOTAL Metals

Client Lot #...: A1J180104

Matrix.....: WG

Date Sampled...: 10/16/01 11:15 Date Received...: 10/17/01

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	WORK ORDER #
MS Lot-Sample #: A1J180104-013 Prep Batch #...: 1292308							
Arsenic	105	(75 - 125)			SW846 6010B	10/22-10/25/01	EMA9W1AF
	90	(75 - 125)	16	(0-20)	SW846 6010B	10/22-10/25/01	EMA9W1AG
		Dilution Factor: 1					
Beryllium	110	(75 - 125)			SW846 6010B	10/22-10/25/01	EMA9W1AM
	93	(75 - 125)	17	(0-20)	SW846 6010B	10/22-10/25/01	EMA9W1AN
		Dilution Factor: 1					
Cadmium	108	(75 - 125)			SW846 6010B	10/22-10/25/01	EMA9W1AJ.
	90	(75 - 125)	16	(0-20)	SW846 6010B	10/22-10/25/01	EMA9W1AK
		Dilution Factor: 1					
Copper	104	(75 - 125)			SW846 6010B	10/22-10/25/01	EMA9W1AQ
	89	(75 - 125)	15	(0-20)	SW846 6010B	10/22-10/25/01	EMA9W1AR
		Dilution Factor: 1					
Manganese	NC,MSB	(75 - 125)			SW846 6010B	10/22-10/25/01	EMA9W1AU
	NC,MSB	(75 - 125)		(0-20)	SW846 6010B	10/22-10/25/01	EMA9W1AV
		Dilution Factor: 1					
Nickel	110	(75 - 125)			SW846 6010B	10/22-10/25/01	EMA9W1AX
	91	(75 - 125)	16	(0-20)	SW846 6010B	10/22-10/25/01	EMA9W1A0
		Dilution Factor: 1					

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

NC The recovery and/or RPD were not calculated.

MSB The recovery and RPD were not calculated because the sample amount was greater than four times the spike amount.

MATRIX SPIKE SAMPLE EVALUATION REPORT

General Chemistry

Client Lot #...: A1J180104

Matrix.....: WG

Date Sampled...: 10/15/01 17:50 Date Received...: 10/17/01

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD	PREPARATION- ANALYSIS DATE	PREP BATCH #
Nitrate-Nitrite			WO#:	EMA9W1A2-MS/EMA9W1A3-MSD	MS	Lot-Sample #:	A1J180104-013
	95	(20 - 183)			MCAWW 353.2	10/24/01	1297509
	88	(20 - 183)	1.8	(0-99)	MCAWW 353.2	10/24/01	1297509
			Dilution Factor: 1				
Nitrate-Nitrite			WO#:	EMA921AK-MS/EMA921AL-MSD	MS	Lot-Sample #:	A1J180104-017
	98	(20 - 183)			MCAWW 353.2	10/24/01	1297510
	101	(20 - 183)	1.8	(0-99)	MCAWW 353.2	10/24/01	1297510
			Dilution Factor: 1				
Nitrogen, as Ammonia			WO#:	EMA9W1AC-MS/EMA9W1AD-MSD	MS	Lot-Sample #:	A1J180104-013
	106	(63 - 126)			MCAWW 350.2	10/20/01	1293094
	99	(63 - 126)	6.4	(0-29)	MCAWW 350.2	10/20/01	1293094
			Dilution Factor: 1				

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

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Project:

Project Number: **South Point RD/RA**Sampler(s): **CAC GAL**

Sample ID	Date	Time	Media	Container Type	Preservative	Requested Analysis	Cooler ID
SPIS-23	10/15/01	18:25	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPIS-23	10/15/01	18:25	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPIS-24	10/16/01	12:20	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPIS-24	10/16/01	12:20	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPIS-24A	10/16/01	12:20	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPIS-24A	10/16/01	12:20	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-01	10/16/01	13:15	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-01	10/16/01	13:15	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-02	10/16/01	10:15	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-02	10/16/01	10:15	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-03	10/16/01	10:45	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-03	10/16/01	10:45	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-04	10/15/01	16:10	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-04	10/15/01	16:10	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-05	10/15/01	17:45	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-05	10/15/01	17:45	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-07	10/16/01	12:45	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-07	10/16/01	12:45	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-07A	10/16/01	12:45	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-07A	10/16/01	12:45	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-08	10/16/01	9:40	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-08	10/16/01	9:40	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146

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Project:

Project Number: **South Point RD/RA**

Sampler(s): **CAC GAL**

Sample ID	Date	Time	Media	Container Type	Preservative	Requested Analysis	Cooler ID
SPMW-09	10/15/01	15:40	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-09	10/15/01	15:40	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-10	10/16/01	11:15	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-10	10/16/01	11:15	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-10MS	10/16/01	11:15	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-10MS	10/16/01	11:15	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-10MSD	10/16/01	11:15	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-10MSD	10/16/01	11:15	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-11	10/15/01	17:25	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-11	10/15/01	17:25	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-12	10/15/01	16:40	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-12	10/15/01	16:40	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPMW-13	10/15/01	17:00	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPMW-13	10/15/01	17:00	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPOB-12R	10/15/01	17:50	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPOB-12R	10/15/01	17:50	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146
SPOB-34	10/15/01	18:15	Ground Water	1 Liter Plastic	H2SO4, Ice	Ammonia and Nitrate/Nitrite	J146
SPOB-34	10/15/01	18:15	Ground Water	250 ml Plastic	HNO3, Ice	Total Metals (As, Be, Cd, Cu, Mn, and Ni)	J146

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Project:

Project Number: **South Point RD/RA**

Sampler(s): **CAC GAL**

Sample ID	Date	Time	Media	Container Type	Preservative	Requested Analysis	Cooler ID
Relinquished By: <i>[Signature]</i>	Date: <i>10/16/01</i>	Time: <i>15:00</i>			Received By: <i>Perry Burns</i>	Date: <i>10/17/01</i>	Time: <i>9:50/A</i>
Relinquished By:	Date:	Time:			Received By:	Date:	Time:
Relinquished By:	Date:	Time:			Received By:	Date:	Time:
Comments: Please see attached PQL table for reporting limits.							

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